
# ASHEVILLE-BUNCOMBE TECHNICAL INSTITUTE

# 1971-1972

# ASHEVILLE-BUNCOMBE TECHNICAL INSTITUTE

340 Victoria Road
Asheville, N. C.

Recognized and Approved By
North Carolina State Board of Education
North Carolina Department of Community Colleges
Division of Vocational Rehabilitation
Veterans Administration

Member of
American Association of Junior Colleges
North Carolina Department of Community Colleges
Student Services Personnel Association
Association of Occupational Curriculum Directors

Accredited By
**Southern Association of Colleges and Schools**

## Catalog of Courses
## Day and Evening School

Volume 9
1971 - 1972

*This catalog should not be considered a contract between Asheville - Buncombe Technical Institute and any prospective student. All charges for tuition and fees are subject to change as required by the Board of Trustees. Also, curriculum offerings may be altered to meet the needs of individual departments.*

# 1971 - 72 CALENDAR

## FALL QUARTER

| | |
|---|---|
| Registration | September 7-8 |
| Classes Begin | September 9 |
| Last day to add or drop classes | September 15 |
| Classes End | November 22 |
| Instructor Work Days | November 23-24 |
| Thanksgiving Holidays | November 25 and 26 |

## WINTER QUARTER

| | |
|---|---|
| Registration | November 29-30 |
| Classes Begin | December 1 |
| Last day to add or drop classes | December 7 |
| Classes End | February 25* |
| Holidays: Christmas | December 22 through January 2 |
| New Year's | January 3 |

## SPRING QUARTER

| | |
|---|---|
| Registration | March 8-9 |
| Classes Begin | March 10 |
| Last day to add or drop classes | March 16 |
| Classes End | May 26 |
| Instructor Work Days | May 29, 30, 31 |
| Holidays: Good Friday | March 31 |
| Easter Monday | April 3 |

## SUMMER QUARTER

| | |
|---|---|
| Registration | June 5 |
| Classes Begin | June 6 |
| Last day to add or drop classes | June 12 |
| Classes End | August 21 |
| Instructor Work Days | August 22, 23, 24 |
| Graduation | August 25 |
| Holidays: Independance Day | July 4 |
| Labor Day | September 4 |

*Days lost due to inclement weather may be made up during the period of February 28 to March 3.

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## CURRICULUMS



*Curriculums offered in both day and evening hours. Enrollment will determine offering or continuing a curriculum.

## ADMINISTRATION

Ben E. Fountain, Jr. ..... Director, Department of Community Colleges

Anthony Bevacqua ..... Director of Occupational Education Division

## BOARD OF TRUSTEES

John M. Barnes, Chairman (1973) ..... Champion Papers, Inc.

Coke Candler (1977) ..... Candler, N. C.

Herbert Coman (1973) ..... Beacon Manufacturing Company

J. Gerald Cowan (1971) ..... Wachovia Bank Building

John W. Erichson (1973) ..... Gerber Products Company

Gordon H. Greenwood (1977)
Chairman, Buncombe County Commissioners

Ernest Mills (1975) ..... Mills Manufacturing Company

William Morgan (1977) ..... American Enka Corporation

W. W. Shope (1975) ..... Furniture, Weaverville, N. C.

L. F. Zerfoss (1971) ..... U.N.C.-Asheville

# ADMINISTRATIVE OFFICES

## OFFICE OF THE PRESIDENT

Thomas W. Simpson, B.S.Ed., M.A.Ed., W.C.U. ..... President
Mrs. Jane G. Smith, W.C.U. ..... Administrative Assistant

## OFFICES OF INSTRUCTION

Harvey L. Haynes, E.T.
B.S.Ed., M.A.Ed., W.C.U. ..... Dean of Instruction

Brewster C. Adams,
J.D., University of Alabama ..... Dean of Evening Programs

Joseph B. Edwards, B.S., Berea,
M.A.Ed., W.C.U. ..... Dean of Occupational Education

Lowell Smith, B.S., M.A.Ed., W.C.U. ..... Dean of Continuing Education

Tyrus E. West, B.S., W.C.U. ..... Director of Extension

Ray E. Sawyer, B.S.,
Newberry College ..... Director Adult Basic Education

Mrs. Barbara Kitchens ..... Secretary

Mrs. Emma Pate ..... Secretary

Jo Ann Ray, A.A.S., A.B. Tech ..... Secretary

Mrs. Margaret Shope ..... Secretary-Bookkeeper

Rhonda West ..... Secretary

### Library

Mrs. Shirley McLaughlin,
B.S.Ed., W.C.U., M.L.S., A.S.U. ..... Librarian

Martha Elizabeth English, B.S., A.S.U. .... Associate Librarian

Mrs. Billie C. Dalton ..... Library Clerk

### Learning Laboratory

Mrs. Katie C. Davis, B.S., Longwood College ..... Coordinator

Ilka Carmen Bowditch, B.S., M.S.,
A and T College ..... Associate Coordinator

## OFFICE OF STUDENT SERVICES

John W. Davis, B.S., Florida State University,
M.A.Ed., W.C.U. ..... Dean of Student Services

Mrs. Mary L. Carpenter, B.S., M.A.Ed., W.C.U. ..... Counselor

A. Thomas Hansen, B.S., M.A.Ed., W.C.U. ..... Counselor

Jane Luther, A.A., St. Gen., B.A., U.N.C.-A., M.A. Ed., W.C.U. ..... Counselor

Mrs. Frances Johnson, A.A.S., A.B. Tech ..... Registrar

## OFFICE OF THE BUSINESS MANAGER

K. Ray Bailey, B.S., Middle Tennessee State University, M.A. Ed., W.C.U. ..... Business Manager

Mrs. Patricia Farr ..... Bookkeeper

Mrs. Jessie P. Goforth ..... Bookkeeper

Mrs. Deborah Parker ..... Accounting Clerk

Mrs. Carolyn Shotwell ..... Accounting Clerk

## OFFICE OF AREA CONSULTANTS

Jay Canter, B.S.Ed., A.S.U. ..... Area Consultant, Hospitality Education

Bob Poore, B.S., W.C.U. ..... Area Consultant, Supervisory Development Training

Mrs. Sandra Sams ..... Secretary

# FACULTY

## DIVISION OF BUSINESS EDUCATION

OLIN R. WOOD (1964)
Director, Division of Business Education. B.S.Ed., M.A.Ed., W.C.U.

ALBERT A. FREEMAN (1966)
Instructor, Business Administration. B.S.Ed., Appalachian State University, M.A.Ed., W.C.U.

N. EUGENE GOODE (1963)
Chairman, Data Processing Technology. University of North Carolina. Member N. C. Bar Association

JEWEL McDANIEL (1965)
Instructor, Secretarial Science. B.S., Montreat College

SARA M. MORRIS (1963)
Chairman, Secretarial Science. B.S.Ed., M.A.Ed., W.C.U.

PAUL H. REYNOLDS (1966)
Instructor, Business and Mathematics. A.B., U.N.C.-Asheville

DONALD J. ROBINSON, (Colonel U.S. Marine Corps - Ret.) (1966)
Chairman, Business Administration. A.B., U.N.C.-Chapel Hill, M.B.A., George Washington University

RONALD B. SLUDER (1965)
Instructor, Business. B.S. Business Administration, W.C.U.

RICHARD WHITE (1965)
Instructor, Business and Economics. B.S. Business Administration, W.C.U.

## DIVISION OF ENGINEERING TECHNOLOGY EDUCATION

RICHARD D. CROOM, P.E. (1966)
Director, Division of Engineering Technology. B.S.C.E., N.C. State University

B. STEVENS CREASMAN (1961)
Chairman, Electronics Technology. C.R.E.I., W.C.U., N.C. State University

WILLIAM A. DICKINSON (1969)
Chairman, Mechanical Engineering Technology. A.B. in Engineering, Stanford University

KENNETH W. DRIVER (1970)
Chairman, Civil Engineering, B.S.C.E., N. C. State University

WILLIAM P. FISHER (1971)
Instructor, Electronics Technology, B.S.E.E., University of Tennessee

RICHARD M. HOLCOMBE (1968)
Chairman, Drafting and Design, B.S. Industrial Management, Georgia Institute of Technology

PAUL E. KEICHER (1970)
Instructor, Drafting and Design. Syracuse University, N. Y. B.CH.E. Chemical Engineering

CAROLYN H. MAY (1970)
Instructor, Chemical Engineering Technology. UNC-Greensboro, A.B. Chemistry. National Science Foundation Institute

ROBERT E. MORRELL (1968)
Chairman, Chemical Engineering Technology. B.S.Ed., University of North Carolina

JAMES H. RHEA (1965)
Instructor, Drafting and Design. Director of Athletics. B.S.Ed., N. C. State University, M.A.Ed., W.C.U.

## DIVISION OF HOSPITALITY EDUCATION

FREDERICK JOHNSSON (1968)
Director, Division of Hospitality Education. B.S., Florida State University

MRS. CHARLENE NOBLETT, Secretary-Bookkeeper

MRS. MARCIA BANNER, Receptionist

ANN MAXWELL COOLEY (1966)
Instructor, Hotel-Restaurant Management and Culinary Technology. University of Colorado, Goucher College, Ecole Le Cordon Bleu, Paris, France

ROBERT G. WERTH (1968)
Chairman, Culinary Technology. New York University, apprenticeship — Hilton Hotels

## DIVISION OF VOCATIONAL-INDUSTRIAL EDUCATION

STANS C. SLUDER (1961)
Director, Division of Vocational-Industrial Education. Hobart Welding School, N.C. State University

ALBERT W. AWALD (1964)
Chairman, Tool and Die Making. General Electric Tool and Die Making Apprenticeship, Erie, Pa. N.C. State University

W. J. DAVIS (1966)
Instructor, Machine Shop. Asheville-Buncombe Technical Institute (1964)

ROBERT H. ISRAEL (1962)
Chairman, Diesel Engines and Hydraulic Systems. G.M. Diesel Technical School, N.C. State University

CHARLES F. NOBLITT (1961)
Chairman, Automotive Department. N.C. State University

ROBERT L. PARKER (1964)
Chairman, Air Conditioning-Refrigeration. Chicago Technical College

ROBERT SWAN (1962)
Chairman, Machine Shop. N.C. State University

JOHN W. WOODY (1964)
Chairman, Carpentry & Cabinetmaking. Mars Hill College. N.C. State University

## DIVISION OF ALLIED HEALTH EDUCATION

JAMES R. WINNING (1963)
Director, Division of Allied Health Education. A.B., Clemson University

DOROTHY S. AYCOCK, R.N. (1970)
Instructor, Associate Degree Nursing. B.S., Nursing. Berea College

KATHRYN P. DAUGHTON, R.N. (1970)
Instructor, Associate Degree Nursing. B.S. Nursing. College of Mount St. Vincent, Riverdale, N. Y.

RUTH G. DIGGES, R.N. (1959)
Instructor, Practical Nurse Education. Jackson Memorial Hospital School of Nursing

RUTH W. GEDDINGS, R.N. (1960)
Chairman, Practical Nurse Education. Jewish Hospital School of Nursing

JOYCE GOUGE, R.N. (1967)
Instructor, Practical Nurse Education. B.S., Berea College

JO ANN HOLDERMAN, R.N. (1968)
Instructor, Practical Nurse Education. Memorial Mission Hospital School of Nurse Education

ANN L. SCOFIELD, R.N. (1970)
Chairman, Associate Degree Nursing. B.S., Nursing. Duke University

LAURA S. WEST (1970)
Instructor, Medical Laboratory Assistant. B.S. Medical Technology, W.C.U.

DAVID WOLFE (1968)
Acting Associate Director, Chairman, Natural Science. B.S.Ed., M.A.Ed., W.C.U.

## DIVISION OF GENERAL EDUCATION

THOMAS E. GAFFIGAN (1965)
Director, Division of General Education. B.S. Mathematics, M.A.Ed., W.C.U.

REX B. BLAKENEY (1966)
Instructor, Electricity. U.N.C.-Asheville, W.C.U.

RONALD G. BRADSHAW (1969)
Instructor, Mathematics. B.S.Ed., W.C.U. M.S.Ed., University of Miami

CYNTHIA N. DANIELS (1970)
Instructor, English. A.B. English/Latin, Mars Hill

JAMES B. HURLEY (1965)
Instructor, English. A.B., Brown University

G. PAUL LENTJES, P.E. (1963)
Chairman, Physical Science. B.S.E.E., University of Pittsburgh

TOBY R. SHOOK (1966)
Chairman, Mathematics. B.A., Berea College, W.C.U.

BERNARD C. SMITH (1969)
Instructor, Physics. B.S., Clemson, M.Ed., University of North Carolina

MAXIE B. WELCH, JR. (1968)
Chairman, English, Psychology, Sociology, B.S., East Carolina University, M.A.Ed., University of Virginia

# HISTORY AND LOCATION

The 1963 General Assembly passed a law placing industrial education centers under the direction of the newly created Department of Community Colleges and governed by a local board of trustees. Soon after its establishment, the Asheville board of trustees requested that the local industrial education center be converted to a technical institute with power to award associate in applied science degrees. This request was approved by the State Board of Education in January, 1964, and the name of the center was changed to Asheville-Buncombe Technical Institute.

The first major expansion of facilities occurred in 1963 when the County obtained a $200,000 loan for a third building. A fourth building, costing $712,000 and utilizing state and federal monies, was added in 1966. In addition to classrooms and a library, this unique facility houses a motel and fully equipped kitchens and a cafeteria for use in the hospitality education curriculums. Bids will be opened in the spring of 1970 for a $903,448 building to house paramedical instruction and a $487,500 administration building.

## LOCATION

The Asheville-Buncombe Technical Institute is located in four modern buildings on a twenty-six acre tract of land off Victoria Road. The entire 90,000 square feet of floor space is specifically designed to house a Trade and Technical program. Included in the buildings are well-lighted classrooms, large laboratories and shops equipped with the most recent test and production type equipment.

# PURPOSE

The fundamental purpose of Asheville-Buncombe Technical Institute is to prepare students through practical education to meet the demands of changing technology in a modern industrial society. The program is designed to provide profitable skills for the untrained, augment the knowledge of those already trained, and offer the opportunity for retraining. Incorporated into the program is the "open door policy" where a student is—insofar as possible—tested to determine his present educational level, counseled to ascertain his aspirations, and guided in the direction in which he appears most likely to achieve success.

The ability to function well in a modern industrial society involves development of attitudes and understandings as well as technical skills. Therefore, the Institute provides a foundation of instruction directed toward enhancing the ability of the individual to communicate effectively, understand and appreciate democratic principles, practice responsibilities of citizenship, and become a contributing member of society.

The curriculum is presented to students enrolled in the Institute programs in order that they may attain two major goals. The first is to obtain knowledge and skills to enter an occupation and, with experience, become successful in that occupation. The second goal is to gain an understanding of the American free enterprise system, a respect for its history, and a concern for its future. All occupational curriculums include foundation courses that serve as a basis for specialized training and also serve future needs for retraining. Interwoven with the total concept of these curriculums is a belief in individual worth and a respect for individual differences as they relate to occupational achievement.

Asheville-Buncombe Technical Institute will provide other programs of organized course sequence which will enable adults who do not have primary, elementary, or secondary educational achievement to attain these levels. Upon attainment the individuals may enter occupational curriculums to gain knowledge and skills that should advance them both economically and culturally.

Asheville-Buncombe Technical Institute will not ignore its responsibility to those presently employed who need additional knowledge and skills. Many courses are designed for a specific industrial requirement while others are presented to reflect general trends, but individual needs shall be considerd as occupational trends are evidenced.

Major areas of occupational education offered by Asheville-Buncombe Technical Institute include:

A. **Engineering technology education** providing specialized college level training for employment in specific areas of business and industry. Courses in communicative English and a broad background in basic science and mathematics are included. Instruction is also in the fields of engineering drawing, industrial terminology, technical report writing, and similar technical skills.

B. **Business education** providing college level training for the fields of accounting, computer programming and operation, business management training, marketing, and secretarialship. Elements of education common to all business occupations are included as well as specialized professional subjects pertinent to the student's academic major. Special emphasis is placed on the development of desirable professional attitudes and on the awareness of social and civic responsibilities.

C. **Health occupations education** include both associate degree and diploma programs offering training in specialized health occupations. A background in science,

mathematics, and communicative English is emphasized, plus instruction in specific skills required by a particular occupation. Students in these areas are expected to meet all standards specified by state licensing agencies in the areas where such requirements are applicable.

D. **Hotel-restaurant management and culinary technology education** offering both associate degree and diploma programs for training in hotel and food service occupations. These curriculums provide basic preparation in business, communicative English, and economics with in-depth concentration in the area of specialization.

E. **Vocational education** curriculums are diploma programs designed to give the student applied experience in the manipulative skills peculiar to a specific trade. In addition, a basic background in mathematics, science, and communicative English is provided.

F. Non-curricular education

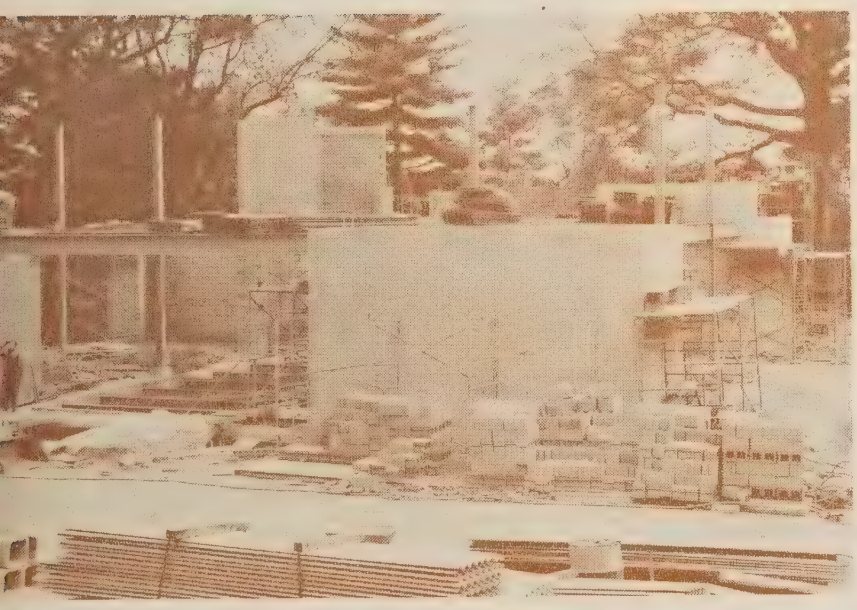
1. **Adult basic education** provides training in primary and elementary education from pre-literacy through Grade 8.

2. **Extension education** includes training in various areas of trade, industrial, business, and service occupations to upgrade and retrain workers. This may also include short-term pre-employment training for potential employees of new and expanding industries, and training in the skills of occupational classifications under provisions of the Manpower Development and Training Act.

3. **General adult education** provides continuation of adult basic education at the secondary level, including preparation for the high school equivalency examination. In addition, courses are offered that are designed to promote the avocational, personal improvement, and cultural interests of the adult population.

4. **The learning laboratory** provides opportunity for self-study, under supervision, for the purpose of correcting deficiencies in educational backgrounds of persons enrolled or preparing to enroll in curriculum areas. The lab also provides opportunity for the general public to further develop individual vocational and academic interests in an unscheduled situation.

In summary, Asheville-Buncombe Technical Institute shall serve as the occupational education link between the individual need and the industrial opportunity.



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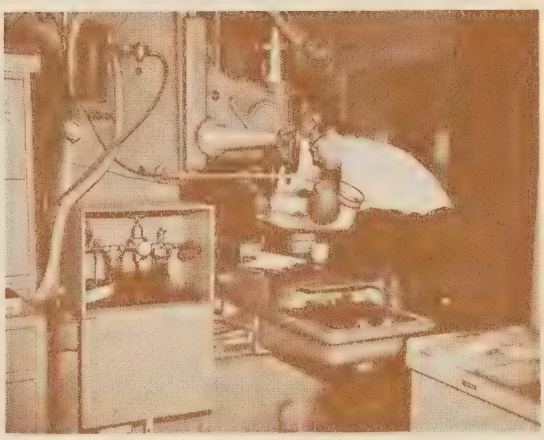


# LEARNING LABORATORY

The purpose of the Learning Laboratory is to provide a facility for the students at Asheville-Buncombe Technical Institute and for the general public to meet their academic and vocational needs through self-instructional or programmed materials. The Laboratory provides the opportunity for students to increase their level of learning before entering a college or university or to help them remove any deficiency before enrolling in our vocational or technical program. It also provides instruction to help an individual prepare for the high school equivalency diploma examination, and in general, can give instruction to anyone regardless of educational background in any of over one hundred subject areas covering material from the first grade through senior college level.

Since there are no formal classes, the student may begin at any convenient time and proceed at his own learning rate. An instructor is always available to give assistance and to determine if the student is progressing satisfactorily.

The Laboratory is open from 8:00 a. m. to 9:15 p. m. Monday through Thursday evenings and from 8:00 a. m. until 4:00 p. m. on Friday.

There is no charge for study in the Learning Laboratory. The only admission requirements are that the person must be 18 or older and must desire educational improvement.

# LIBRARY

A technical library is maintained by the Asheville-Buncombe Technical Institute for use by faculty and students. Library resources are also available to representatives of industry, and, in general, to any member of the community desiring to use its facilities. The library contains scientific and technical volumes as well as subject matter materials in all related fields and current magazines and journals. New volumes are being added every quarter in order to keep abreast with technological advancements. In addition, a very fine collection of fiction, paperbacks, and books of general reader interest is provided for recreational reading. The library is open both day and evening.

| | | |
|---|---|---|
| Hours: | Monday - Thursday | 8:00 A.M. - 10:00 P.M. |
| | Friday | 8:00 A.M. - 4:30 P.M. |
| | Closed each day | 5:00 P.M. - 6:00 P.M. |

# ADMISSION PROCEDURE AND STUDENT INFORMATION

## GENERAL ENTRANCE REQUIREMENTS

Asheville-Buncombe Technical Institute operates an "Open Door" admission policy. Any applicant who has completed high school, or who is eighteen years of age or older and has completed at least eight units of high school, may be admitted to the Institute.

Placement into a specific course of study is based upon standards which will help to assure the applicant's success in that course of study. Those who do not yet possess the background required by the course of study of his choice may be enrolled in preparatory courses designed to provide this background.

Applicants should be in good health with no impairment of vision or other physical defect which would restrict his ability in a particular field of work. A complete physical examination may be required.

Educational background, interest, motivation, experience and aptitudes will be considered when an application is submitted to the Institute.

## SPECIFIC REQUIREMENTS


Business Education see page 25
Engineering Technologies see page 38
Health Occupations see page 54
Hospitality Education see page 49
Vocational Programs see page 67


## ADMISSION PROCEDURE

Persons wishing to enroll at the Institute must complete the entire application process. This consists of the following steps:

1. Submit an application form.
2. Obtain a transcript of credits from the last school attended.
3. Complete the battery of admission and placement tests administered by the Institute.
4. Have a personal interview with the student services staff or other member of the administrative staff.

Upon receipt of the completed application form the Institute will schedule a date for test administration and notify the applicant by mail. Transcripts should be mailed from the school directly to the Institute on the transcript form in use by that school.

Upon completion of the above procedure, each applicant will receive written notification of the action taken by the admissions committee.

## SUPERVISED STUDIES PROGRAM

Asheville-Buncombe Technical Institute provides two quarters of study in mathematics, English and basic science for students needing additional academic foundation before entering a curriculum. The need for this foundation is generally determined by the standard entrance examinations.

This program can provide assistance to those who have had instruction in the areas concerned but who have not retained the material due to lapse of time or other factors. Secondly, it will provide initial instruction for those who have not had sufficient background to qualify for the course of their choice.

NOTE: All curricula will not offer the first quarter of major course work at the beginning of the third quarter. However, the counselors will work with individuals enrolled in the program to schedule entry at the earliest possible time.

## TRANSFER CREDIT

The Asheville-Buncombe Technical Institute will accept and give credit for work completed in other Technical Institutes, or Colleges. Applicants for admission with advanced standing should make application as a regular applicant and submit a transcript of work from prior schools. No credit will be permitted for work below a "C" or the average grade given by another school. Acceptance of such work will be at the discretion of the President.

## CREDIT BY EXAMINATION

Applicants who have reason to believe they are proficient in a subject may request credit by examination. The examination may be written, oral, performance, or all of these. Students failing such an examination may not request a second examination until evidence of further study in the subject concerned is presented. Decision of the examining instructor will be final.

No quality points will be awarded for such credit.

# FEES

**Student Activity Fee** (Paid when application is approved for all new students. Paid during fall registration by all returning students.)

| | |
|---|---|
| Evening Students | $ 7.00 |
| Day Students | $20.00 |

Tuition:

| | |
|---|---|
| Full time students (those enrolled for 12 credit hours or more), per quarter | $32.00 |
| Part-time students (less than 12 credit hours), per credit hour, per quarter | $ 2.50 |
| Late registration fee | $ 5.00 |

In addition to fees above, students must purchase required textbooks for each course.

| | |
|---|---|
| Graduation Fees: — Degree | $12.00 |
| Diploma | $10.00 |

NOTE: Students taking drafting courses should anticipate an instrument and equipment cost of $10.00 to $25.00 at the beginning of their first drafting course.

## Student Insurance

Certain risks are inherent in any work involving regular contact with mechanical and electrical equipment. While stringent precautions will be taken to insure safety, it is felt to be in the interest of all students to provide some measure of insurance protection.

A group policy, providing the desired insurance protection, will be maintained in effect by the Institute and all students will be REQUIRED to subscribe to such coverage. The cost of accident insurance to the student will be approximately $2.75 per year.

## Refunds

Refunds amounting to two-thirds of the initial tuition payment may be requested if a student has official withdrawal during the first 10 calendar days of the quarter. No refunds will be made to students who withdraw without authority or who are dismissed for cause.

## Loan Funds

The Institute has several loan plans available for students who need financial assistance. Amounts up to one-thousand dollars per year may be arranged by North Carolina residents who meet the qualifications of the various plans. Persons interested in obtaining funds should visit the insitute for more specific information.

# SCHOLARSHIPS

## Junior Women's Civic Club Scholarship

This scholarship is awarded annually by the Asheville Junior Women's Civic Club and is in an amount sufficient to cover tuition for the year. Selection for this grant is accomplished by the school Scholarship Committee.

## Olin Mathieson Chemical Corporation

There are two tuition scholarships made available by Olin Mathieson Chemical Corporation, Brevard, North Carolina. Selection for these awards is accomplished by a committee of educators in the Transylvania Schools. Preference is given to children of employees of Olin Mathieson.

## General Scholarship Fund

Contributors: Women of All Souls Episcopal Church
Woman's Club of Asheville
George Goosmann, Josten's Incorporated

The Student Aid Committee of Asheville-Buncombe Technical Institute administers this fund. The philosophy governing the awarding of these scholarships is quite simple: "assist those who have proven themselves mature and responsible in their field of endeavor and who are in need of temporary financial assistance."

An individual award from this fund will rarely be for more than one quarter at a time and may be for as little as one month. This fund may be used to assist a large number of students over temporary hurdles.

## Kearfott Scholarship

The Kearfott Company of Swannanoa has established a scholarship fund which is available to students of Owen High School who attend the Institute. Recipients of this scholarship are selected by the Student Aid Committee in cooperation with officials from Owen High School. Applications may be submitted after February 1 of each year with selection made in April. The scholarships cover registration and tuition.

# DEGREES, DIPLOMAS AND CERTIFICATES

## DEGREE PROGRAMS DEFINED

Asheville-Buncombe Technical Institute will confer an Associate in Applied Science degree in all Technical and Business Curriculums. This is conferred in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied.

## DIPLOMA PROGRAMS DEFINED

Asheville-Buncombe Technical Institute will award a technical diploma for some seven quarter programs. This diploma will be awarded in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied and will be presented as an "Associate of" in the specific curriculum area.

Asheville-Buncombe Technical Institute will award a Diploma in all Trade Curriculums. This diploma will be granted in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied.

## CERTIFICATES

Certificates are issued in the name of the Asheville-Buncombe Technical Institute to students who successfully complete any short term program or course.

# DEGREE AND DIPLOMA REQUIREMENTS FOR GRADUATION

The following list is established as minimum requirements for the Associate in Applied Science degree and Diplomas.

1. Complete all course requirements as outlined by curriculums and earn at least a 2.0 grade point average in courses presented for graduation.
2. Application for graduation must be submitted to the Dean of Student Services one quarter prior to completion of course requirements.
3. Prospective graduates must be recommended by the chairman of the department in which a student completes his or her major work.
4. Fulfill all financial obligations to the Institute.
5. Be present for graduation exercises which are held during the last week of August each year. Exceptions to this requirement in cases of unavoidable absences may be granted by the President of the institute.
6. Prospective graduates must be dressed for graduation in the proper academic attire.

## QUALITY POINTS

At the end of each quarter quality points are assigned in accordance with the following formula. (The minimum grade-point ratio for graduation is 2.00 or an average of grade C.)

A — 4 quality points per credit hour
B — 3 quality points per credit hour
C — 2 quality points per credit hour
D — 1 quality point per credit hour
F — no quality points
I — no quality points

Quality ratings are determined by dividing the total number of quality points by the number of hours attempted. A ratio of 2.00 indicates that the student has an average of C.

WP—given when student **officially withdraws** and is passing his work at the time. This will not influence the quality point ratio.

WF—given when the student **officially withdraws** and is failing his work at the time. This will not influence the quality point ratio.

## GRADING SYSTEM

Notice will be given to all students who are failing at mid-term and final grades will be issued at the end of the term to all students. Students will be graded on the acquirement of technical skills, ability to work under supervision, interest in work, initiative, and the ability to apply related information.

Students enrolled in either the school of Technology or the school of Trades will be graded by the following system.

| | | |
|---|---|---|
| A | 93 - 100 | Excellent |
| B | 86 - 92 | Above Average |
| C | 78 - 85 | Average |
| D | 70 - 77 | Passing |
| F | Below 70 | Unsatisfactory |
| WP | Withdrawal passing | |
| WF | Withdrawal failing | |
| I | Incomplete | |

Incomplete: Assigned when a student is unable to complete his work or take a final examination because of illness or for other reasons over which the student has no control. This grade is given only with the approval of the Dean of Student Services. An "incomplete" must be removed within the first six weeks of the next term in which the student is enrolled. Otherwise, the grade becomes an "F".

## WITHDRAWAL

In order to qualify for honorable dismissal and/or a tuition refund, if due, a student must obtain an official withdrawal. An official withdrawal is accomplished by completing a "withdrawal request" form through the Student Services office.

Students who leave school entirely or who leave one or more courses without completing this procedure will receive a grade of "F" for the course or courses in progress and will jeopardize future readmission to the Institute.

Under normal circumstances withdrawal from individual courses will **not** be allowed after the eighth week of the quarter.

See "quality points" for result of withdrawal.

## ATTENDANCE REQUIREMENTS

The nature of the program at Asheville-Buncombe Technical Institute requires students to be in attendance at all classes in order to receive the maximum benefit. The school has no "cut" system and absences allowed are for those reasons outlined below. Further, each student is responsible to notify the Student Services office **on the day of his absence** of the reason for the absence and when he expects to return to school. Failure to notify the school will result in the absence being classified as unexcused.

Excused absences are allowed in the following instances:

A. Illness or injury to the student.

B. Illness or death in the immediate family.

C. Emergencies of other types (considered individually.)

NOTE: For excused absences the student has the right to make-up work missed. Unexcused absences result in a zero for the day which will be averaged with other daily grades or tests.

A student's hours of absence should not exceed the number of credit hours of the course. (Example: 3 credit hours — maximum 3 hours absence). Students having excessive absences may lose credit for the course.

## FAILURES

All failing grades must be removed before graduation. If a student fails a prerequisite course he must repeat and successfully complete the prerequisite before beginning the next course. This could result in the student being enrolled for a longer period than is normally required to complete requirements for graduation.

Students whose effort and/or attitude is such that, in the judgment of their department chairman, they cannot be successful in their studies may be referred to the Admissions Committee for action.

## STUDENT CONDUCT

Students will be expected to conduct themselves at all times as individuals of prudence and maturity. The rights and feelings of others will be respected. Each student shall demonstrate a high regard for school facilities and property and for the personal property of others.

School regulations which serve to control such activities as vehicle traffic and parking, smoking, loitering, and other aspects of personal conduct must be stringently observed.

Students may be promptly dismissed for conduct which is considered incompatible with standards of propriety and good judgment.

## ADDITIONAL COUNSELING AND TESTING

As mentioned under admission procedure, all applicants will be required to be subjected to a series of tests. This will be accomplished prior to acceptance and registration. The counselor will schedule interviews with students concerning interpretation of their test scores and he will advise students concerning course selections. Additional aptitude tests may be desirable to determine individual ability. Applicants are encouraged to enroll in programs when it is believed that the student has made a sound choice and that he will profit from his choice.

Students are encouraged to use the counseling services at any time. The counseling service will work at all times with individuals to keep them informed of the progress they are making. Also, many reference materials are made available to students during the training program through the counseling service.

## PLACEMENT SERVICE

The Institute provides placement services which will assist students and alumni in securing employment. The objective of this service is to guide and assist the student and graduate in obtaining the type of position for which he is best qualified.

The Institute provides placement service by working closely with local industries and the employment agencies. Personal data sheets will be developed for those graduating students who desire this service. Data sheets will be mailed to selected businesses and industries and group and/or individual interviews arranged.

## STUDENT LOUNGE

A refreshment and lounge area equipped with a variety of modern vending machines is provided for the convenience of students and faculty. Foods and drinks may not be taken into a classroom, shop, or laboratory.

## DEAN'S LIST

1. Only a full-time student is to be considered. (A full-time student is defined as a student enrolled in a curriculum program, carrying a minimum of 12 quarter hours in the day program, or the maximum number of hours allowed in the evening program.)
2. Student is to have a minimum 3.50 quality point average to qualify for the quarter under consideration.
3. Student must maintain an overall 3.00 average with a 3.0 average in his major area.
4. Failures, incompletes, and withdrawals, pass or fail, will automatically eliminate a student from this list for that particular quarter. Students receiving credit for a course by examination are not affected.
5. The student's placement on the Dean's List will be made primarily by the Department Chairman.
6. After which, the Dean of Instruction will make the final consideration of the names.
7. The List will be compiled by the Registrar, sent to the Department Chairmen, and then to the Dean of Instruction, who will be responsible for the publication of this List in local and pertinent hometown newspapers.
8. This list will be published following every quarter in the Asheville papers and in the hometown papers of qualifying students. (Allowing sufficient time for paper work.)

# Division of Business Education

## A.A.S. DEGREE CONFERRED

The following areas of study are included in the Division of Business Education.

Business Administration
- Accounting Option
- Industrial Management Option

Electronic Data Processing
(Must Meet Same Specific Entrance Requirements as Engineering Technology)

Secretarial Science

All of the areas of study in the School of Business Education are seven quarters in duration and will require from twenty to thirty hours per week of course work. If a student elects to enroll in the School of Business Education through the evening school, the time required for completion will be extended.

## IMPORTANT

The schools of business education are divided into upper and lower levels. In order for a student to advance into the upper level (2nd year) he must complete the lower (1st year) with a grade point average of 1.75 level work and be recommended by the chairman of the major department in which he is enrolled.

## SPECIFIC ENTRANCE REQUIREMENTS FOR BUSINESS DIVISION

1. Must be a high school graduate or have a State approved equivalent education.
2. Must submit the transcripts of high school and post-high school education.
3. Must demonstrate suitability for business training as determined by appropriate tests.
4. Must be in acceptable condition of physical and mental health.
5. Must have a personal interview with school representatives.

# BUSINESS ADMINISTRATION

In North Carolina the opportunities in business are increasing. With the increasing population and industrial development in this State, business has become more competitive and automated. Better opportunities in business will be filled by students with specialized education beyond the high school level. The Business Administration Curriculums are designed to prepare the student for employment in one of many occupations common to business. Training is aimed at preparing the student in every phase of administrative work that might be encountered in the average business.

The Business Administration Department has developed three curriculums: Business Administration, Accounting, and Industrial Management to meet the growing manpower requirements in these areas of business and industry. All three curriculums have identical first, second and third quarter requirements — at the end of the third quarter the student may elect the major of his choice. The successful completion of one of these curriculums leads to the awarding of the Associate in Applied Science Degree.

The offering of an Industrial Management major to the students enrolling in the Fall Quarter of 1971 will be contingent upon Administration consideration.

# OCCUPATIONAL OPPORTUNITIES

The graduate of the Business Administration Curriculum may enter a variety of career opportunities. The duties and responsibilities of this graduate will vary in different firms. These encompassments might include: trainee in business management; advertising; sales; credit management; banking and finance; personnel administration; wholesaling; retailing; transportation and insurance.

The degree Associate in Applied Science in Business Administration is awarded upon satisfactory completion of this curriculum.

# COURSE OBJECTIVES

The objectives of the Business Administration Curriculum are to develop the following competencies:

1. Understanding of the principles of organization and management in business operations and utilization of modern methods for adequate decision making.
2. An understanding of our American economic system through the study of macroeconomics; a study and analysis of the role of finance, and of marketing to include Product, Place, Promotion, and Price.
3. Knowledge in specific elements of accounting and business law.
4. Understanding and skill in effective communication for business.
5. Knowledge of human relations as they apply to successful business operations in our economy.

## BUSINESS ADMINISTRATION

**Title Description**

| **First Quarter** | | | **Class** | **Lab** | **Credit** |
|---|---|---|---|---|---|
| ENG | 100 | Reading Comprehension | 3 | 2 | 4 |
| MAT | 110 | Business Math I | 5 | 0 | 5 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| ECO | 102 | Economics | 3 | 0 | 3 |
| | | | 14 | 4 | 16 |
| **Second Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 111 | Business Math II | 3 | 0 | 3 |
| ECO | 104 | Economics | 3 | 0 | 3 |
| BUS | 120 | Accounting | 5 | 2 | 6 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| | | | 15 | 6 | 18 |
| **Third Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| BUS | 121 | Accounting | 5 | 2 | 6 |
| PSY | 206 | Psychology APPLIED | 3 | 0 | 3 |
| MAT | 112 | Math of Business Finance | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |
| **Fourth Quarter** | | | | | |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| BUS | 123 | Finance | 5 | 0 | 5 |
| BUS | 115 | Business Law | 3 | 0 | 3 |
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| | | | 14 | 2 | 15 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 204 | Oral Communication | 3 | 0 | 3 |
| BUS | 116 | Business Law | 3 | 0 | 3 |
| BUS | 124 | Finance | 3 | 2 | 4 |
| BUS | 233 | Personnel Management and Supervision | 5 | 0 | 5 |
| BUS | 219 | Credit | 5 | 0 | 5 |
| | | | 19 | 2 | 20 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| BUS | 239 | Introduction to Marketing | 5 | 0 | 5 |
| BUS | 247 | Insurance | 5 | 0 | 5 |
| BUS | 270 | Methods for Managerial Decisions | 3 | 2 | 4 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| | | | 16 | 2 | 17 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| BUS | 235 | Bus. Organization and Management | 3 | 2 | 4 |
| ECO | 106 | Labor Economics | 3 | 0 | 3 |
| BUS | 229 | Taxes | 3 | 2 | 4 |
| | | | 12 | 4 | 14 |

# BUSINESS ADMINISTRATION

## ACCOUNTING OPTION

### OBJECTIVES OF CURRICULUM

Accounting is one of the fastest growing employment fields in America today, and the job outlook for good accountants seems bright for many years to come. These opportunities result from the tremendous business and industrial expansion in all parts of the country. Because of this emphasis, there is a growing need for trained people in the area of accounting to help managers keep track of a firm's operation. The Accounting Curriculum is designed to fill this need by offering students the necessary accounting theories and skills for entry into the accounting profession.

The specific objectives of the Accounting Curriculum are to develop the following competencies:

1. Understanding of the principles of organization and management in business operations.
2. Understanding of the fundamentals of accounting and analysis of financial statements.
3. Understanding and skill in effective communications for business.

### OCCUPATIONAL OPPORTUNITIES

The duties and responsibilities of an accountant vary somewhat in different firms. Some of the things an accountant might do are: record transactions, render periodic reports, maintain cost records, make special reports, complete tax returns, audit the books, and advise management in areas of financial affairs.

The graduate of the Accounting Curriculum may qualify for various jobs in business and industry leading to any of the following accounting positions: accounting clerk, payroll clerk, accounting machine operator, auditor, and cost accountant. This training plus further experience should prepare them to become office managers, accounting supervisors, and to fill other responsible positions in a business firm.

## BUSINESS ADMINISTRATION—ACCOUNTING OPTION

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 100 | Reading Comprehension | 3 | 2 | 4 |
| MAT | 110 | Business Math I | 5 | 0 | 5 |
| ECO | 102 | Basic Economics | 3 | 0 | 3 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |
| **Second Quarter** | | | | | |
| MAT | 111 | Business Math II | 3 | 0 | 3 |
| ECO | 104 | Economics | 3 | 0 | 3 |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| BUS | 120 | Accounting | 5 | 2 | 6 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| | | | 15 | 6 | 18 |
| **Third Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| BUS | 121 | Accounting | 5 | 2 | 6 |
| PSY | 206 | Psychology APPLIED | 3 | 0 | 3 |
| MAT | 112 | Math of Business Finance | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |
| **Fourth Quarter** | | | | | |
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| BUS | 122 | Accounting | 5 | 2 | 6 |
| BUS | 115 | Business Law | 3 | 0 | 3 |
| | | | 14 | 4 | 16 |
| **Fifth Quarter** | | | | | |
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| BUS | 225 | Cost Accounting | 5 | 0 | 5 |
| BUS | 235 | Organization & Management | 3 | 2 | 4 |
| BUS | 247 | Insurance | 5 | 0 | 5 |
| BUS | 116 | Business Law | 3 | 0 | 3 |
| | | | 19 | 2 | 20 |
| **Sixth Quarter** | | | | | |
| BUS | 269 | Auditing | 4 | 2 | 5 |
| BUS | 219 | Credit | 5 | 0 | 5 |
| BUS | 123 | Finance | 5 | 0 | 5 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| | | | 17 | 2 | 18 |
| **Seventh Quarter** | | | | | |
| BUS | 239 | Introduction to Marketing | 5 | 0 | 5 |
| BUS | 229 | Taxes | 3 | 2 | 4 |
| BUS | 258 | Machines Accounting | 1 | 4 | 3 |
| ENG | 103 | Technical Report Writing | 3 | 0 | 3 |
| | | | 12 | 6 | 15 |

# BUSINESS ADMINISTRATION

## INDUSTRIAL MANAGEMENT OPTION

Industry's needs in positions of supervision and mid-management have grown extensively with the development of new methods of manufacturing and with the increase in the national economy. This need has added emphasis to the necessity for well-trained individuals who can understand new methods and keep abreast of trends in the economy. The supervisor and persons in mid-management must be concerned daily with human behavior and the psychological factors which affect personnel working under their direction. They must also be conscious of the responsibilities of their position toward the total economic well being of the industry.

## OBJECTIVES OF CURRICULUM

These requirements have set forth the objectives in developing this program to prepare people for supervisory and mid-management responsibilities in industry.

The program is prepared to develop the individual's abilities in the art of communicating with his fellow worker by providing him with training in business and industrial management, psychology, production methods, and the general and social education that broadens one's perspective. This training should provide one with the opportunity to enter into an industrial occupation and, with experience, assume the responsibilities that go with supervisory and mid-management positions in industry.

## OCCUPATIONAL OPPORTUNITIES

The Supervisor or foreman coordinates the activities of workers in one or more occupations. His duties may encompass the interpreting of company policies to workers, involvement in planning of production schedules and estimating of man hour requirements for job completion, establishment or adjustment of work procedures, analyzes and resolves work problems, and initiates or suggests plans to motivate workers to achieve work goals.

## COURSE OFFERING

**The availability of this course to students enrolling in the Fall Quarter of 1971 will be contingent upon administrative consideration.**

## BUSINESS ADMINISTRATION

## INDUSTRIAL MANAGEMENT OPTION

| First Quater | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| ENG | 100 | Reading Comprehension | 3 | 2 | 4 |
| MAT | 110 | Business Math I | 5 | 0 | 5 |
| ECO | 102 | Economics | 3 | 0 | 3 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |
| **Second Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 111 | Business Math II | 3 | 0 | 3 |
| ECO | 104 | Economics | 3 | 0 | 3 |
| BUS | 120 | Accounting | 5 | 2 | 6 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| | | | 15 | 6 | 18 |
| **Third Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| BUS | 121 | Accounting | 5 | 2 | 6 |
| PSY | 206 | *Psychology APPLIED | 3 | 0 | 3 |
| MAT | 112 | Math of Business Finance | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |
| **Fourth Quarter** | | | | | |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| BUS | 239 | Introduction to Marketing | 5 | 0 | 5 |
| BUS | 115 | Business Law | 3 | 0 | 3 |
| BUS | 225 | Cost Accounting | 5 | 0 | 5 |
| | | | 16 | 0 | 16 |
| **Fifth Quarter** | | | | | |
| ENG | 204 | Oral Communication | 3 | 0 | 3 |
| MAT | 114 | Basic Descriptive Statistics | 3 | 2 | 4 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| DFT | 101 | Drafting I | 1 | 5 | 4 |
| BUS | 116 | Business Law | 3 | 0 | 3 |
| | | | 13 | 7 | 17 |
| **Sixth Quarter** | | | | | |
| BUS | 233 | ~~Personal~~ PERSONNEL Management & Supervision | 5 | 0 | 5 |
| ISC | 102 | Industrial Safety | 3 | 0 | 3 |
| ISC | 202 | Quality Control | 3 | 2 | 4 |
| ISC | 203 | Time and Motion Study | 3 | 2 | 4 |
| ISC | 209 | Plant Layout | 3 | 2 | 4 |
| | | | 17 | 6 | 20 |
| **Seventh Quarter** | | | | | |
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| ISC | 251 | Labor Problems and Labor Law | 3 | 2 | 4 |
| ISC | 211 | Work Measurement | 3 | 2 | 4 |
| ISC | 204 | Value Analysis | 3 | 0 | 3 |
| BUS | 235 | Business Organization & Management | 3 | 2 | 4 |
| | | | 15 | 8 | 19 |

# ELECTRONIC DATA PROCESSING

The electronic data processing curriculum is designed to give the student a broad background in business data processing. Technical courses emphasizing computer programming in several modern computer languages, systems and procedures in data processing, and computer operations are supported by many courses from which practical business, commercial and industrial application problems may be selected. The data processing courses include lecture to introduce theory and new concepts, example problems utilizing common techniques, and practical laboratory problems for the individual student.

The electronic data processing hardware available to students consists of IBM unit-record equipment, the IBM 1620 computer, and the IBM 2780 terminal. The terminal has card I/0 and a line printer. It is connected directly to the IBM System 360-75 computer at the Triangle Universities Computation Center in Research Triangle Park.

In addition to full utilization of all of this equipment, some student programs are tested on the IBM S/360-30 and the IBM S/360-20 computers in local computer centers.

## OCCUPATIONAL OPPORTUNITIES

Business data processing graduates have opportunities in computer programming, computer operations, systems analysis, and data processing supervision. These positions may be found in banking, business, civil service, educational institutions, industry, and insurance.

### ELECTRONIC DATA PROCESSING

| First Quarter | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| ENG | 100 | Reading Comprehension | 3 | 2 | 4 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| EDP | 101 | Functional Wiring Principles | 2 | 3 | 3 |
| EDP | 102 | Introduction to Computer Technology | 2 | 3 | 3 |
| | | | 15 | 10 | 19 |
| **Second Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| EDP | 104 | Business Programming (SPS) | 2 | 3 | 3 |
| EDP | 105 | Introduction to Scientific Programming (FORTRAN) | 2 | 3 | 3 |
| | | | 15 | 6 | 17 |

**Third Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 102 | Composition | 3 | 0 | 3 |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| BUS | 120 | Accounting I | 5 | 2 | 6 |
| EDP | 107 | Introduction to S/360 (OS) | 3 | 2 | 4 |
| EDP | 110 | Business Programming (COBOL) | 3 | 2 | 4 |
| | | | 19 | 6 | 22 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MAT | 104 | Mathematics of Finance | 5 | 0 | 5 |
| BUS | 121 | Accounting II | 5 | 2 | 6 |
| BUS | 110 | Office Machines | 1 | 4 | 3 |
| EDP | 111 | Systems and Procedures (COBOL) | 2 | 3 | 3 |
| EDP | 210 | Advanced COBOL | 2 | 3 | 3 |
| | | | 15 | 12 | 20 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| MAT | 214 | Statistics | 5 | 0 | 5 |
| BUS | 225 | Cost Accounting | 5 | 0 | 5 |
| EDP | 201 | Business Programming (RPG) | 2 | 3 | 3 |
| EDP | 202 | Systems and Procedures (RPG) | 2 | 3 | 3 |
| | | | 17 | 6 | 19 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PSY | 206 | Psychology APPLIED | 3 | 0 | 3 |
| BUS | 115 | Business Law | 3 | 0 | 3 |
| ECO | 102 | Economics | 3 | 0 | 3 |
| EDP | 205 | Scientific Programming (FORTRAN IV) | 3 | 2 | 4 |
| EDP | 206 | Systems and Procedures (FORTRAN IV) | 2 | 3 | 3 |
| | | | 14 | 5 | 16 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| EDP | 208 | Business Programming (BAL) | 3 | 2 | 4 |
| EDP | 212 | Systems Analysis and Design | 2 | 3 | 3 |
| EDP | 213 | Job Control Language (S/360) | 3 | 2 | 4 |
| EDP | 215 | System/3 and RPG II | 3 | 2 | 4 |
| | | | 14 | 9 | 18 |

# SECRETARIAL SCIENCE

The purpose of this program is to instruct the student in the aspects involved in the role of the secretary in order to enable her to succeed in her position as the communication's link for management.

To accomplish this purpose, we endeavor to teach, in addition to skills and general business courses, occupational intelligence; and we also endeavor to help the student develop a secretarial personality.

## OCCUPATIONAL OPPORTUNITIES

A graduate of this program could perform in any secretarial position in business, industry, education, government, etc. With additional specialized work, she also could qualify to enter a secretarial position in the field of health services or law.

## SECRETARIAL SCIENCE

Additional hours as necessary will be assigned as scheduled shorthand and typewriting laboratories. These additional hours can be scheduled in any quarter.

### SECRETARIAL SCIENCE

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| SSC | 101 | Basic Typewriting | 2 | 3 | 3 |
| SSC | 102 | Shorthand | 3 | 2 | 4 |
| | | | 11 | 7 | 14 |
| **Second Quarter** | | | | | |
| MAT | 110 | Business Mathematics I | 5 | 0 | 5 |
| BUS | 114 | Business Law | 5 | 0 | 5 |
| SSC | 103 | Advanced Typewriting | 2 | 3 | 3 |
| SSC | 104 | Shorthand | 3 | 2 | 4 |
| SSC | 127 | Business English | 3 | 0 | 3 |
| | | | 18 | 5 | 20 |
| **Third Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| BUS | 118 | Secretarial Accounting | 5 | 2 | 6 |
| SSC | 105 | Expert Typewriting | 2 | 3 | 3 |
| SSC | 106 | Shorthand | 3 | 2 | 4 |
| | | | 14 | 11 | 19 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| BUS | 119 | Secretarial Accounting | 5 | 2 | 6 |
| SSC | 108 | Shorthand | 3 | 2 | 4 |
| SSC | 111 | Office Machines and Machine Transcription | 2 | 2 | 3 |
| SSC | 112 | Filing | 3 | 0 | 3 |
| SSC | 113 | Personality Development for Secretaries | 3 | 0 | 3 |
| | | | 16 | 6 | 19 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| SSC | 205 | Professional Typewriting | 2 | 3 | 3 |
| SSC | 206 | Dictation and Transcription | 3 | 2 | 4 |
| | | | 14 | 7 | 17 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ECO | 105 | Economics | 5 | 0 | 5 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| SSC | 207 | Secretarial Procedures I | 3 | 2 | 4 |
| SSC | 208 | Dictation and Transcription | 3 | 2 | 4 |
| | | | 14 | 4 | 16 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 205 | Written Communication for Secretaries | 5 | 0 | 5 |
| SSC | 271 | Office Management | 3 | 0 | 3 |
| SSC | 209 | Secretarial Procedures II | 3 | 2 | 4 |
| SSC | 210 | Dictation and Transcription | 3 | 4 | 5 |
| | | | 14 | 6 | 17 |

# Division of Engineering Technology

## A.A.S. DEGREE CONFERRED

The following areas of study are included in the school of engineering technology:

Chemical Engineering Technology

Civil Engineering Technology

Drafting and Design Technology

Electronics Technology

Mechanical Engineering Technology

The Curriculums in the school of engineering technology are seven quarters in duration and will require about twenty-five to thirty hours per week in classroom and laboratory work. If a student elects to enroll in the school of engineering technology through evening division, the time required for completion will be extended.

The division of engineering technology will require each student to demonstrate an ability to do research as it relates to original thinking. Certain courses are required of every student irrespective of the curriculum area. These courses are core courses and will serve as supporting areas of study in addition to the subjects required by the technical specialty.

### Important

The schools of engineering technology are divided into upper and lower level. In order for a student to advance into the upper level (2nd year), he or she must complete the lower (1st year) level work with a grade point average 1.75 and be recommended by the chairman of the major department in which he is enrolled.

# SPECIFIC ENTRANCE REQUIREMENTS FOR ENGINEERING TECHNOLOGY PROGRAMS

1. Be a high school graduate or have a State approved equivalent education.
2. Submit transcripts of high school and post high school education.
3. Students must demonstrate mathematics proficiency:
   a. have high school credit for two units of math, one of which is in algebra and the other in algebra II, plane geometry, or equivalent.
   b. achieve satisfactory scores on mathematics placement examination.

   Recommended: The candidate should have completed one unit of science beyond general science, such as physics or chemistry.
4. Must demonstrate suitability for technical training as determined by appropriate tests.
5. The Institute may require a complete physical examination.
6. Must have a personal interview with designated school representatives.

# CHEMICAL ENGINEERING TECHNOLOGY

## (Industrial)

The chemical technology student studies the fundamentals of general chemistry and organic chemistry and learns how to perform qualitative, and analytical analyses. The student will study substances and the reactions between them and learn the methods and procedures used in the discovery and development of new products. In the unit operation laboratory the student will learn material handling; crushing, grinding, and sizing; he studies chemical machinery and methods used in extraction, distillation, evaporation, drying, absorption, and heat transfer. He also devises, installs, and operates chemical manufacturing processes.

### OCCUPATIONAL OPPORTUNITIES

The chemical technology graduate will find employment in a wide variety of fields such as foods, metals, paints, glass, plastics, rubber, fuels, paper, building products, dyes, oils, lubricants, and heavy chemicals.

This individual will fill such jobs as Research Assistant, Control Chemist, Laboratory Technician, Chemical Analyst, and Pilot Plant Foreman.

### CHEMICAL ENGINEERING TECHNOLOGY
### CHEMICAL ENGINEERING

| Course | | Title | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| DFT | 101 | Drafting | 1 | 5 | 3 |
| ECO | 105 | Economics | 5 | 0 | 5 |
| CHM | 111 | General Chemistry | 3 | 4 | 5 |
| | | | 17 | 9 | 21 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| PHY | 101 | Physics | 3 | 2 | 4 |
| CHM | 112 | General Chemistry | 3 | 4 | 5 |
| | | | 14 | 6 | 17 |
| **Third Quarter** | | | | | |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| PHY | 102 | Physics | 3 | 2 | 4 |
| CHM | 113 | General Chemistry | 3 | 4 | 5 |
| CHM | 121 | Qualitative Analysis | 3 | 6 | 5 |
| | | | 17 | 12 | 22 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| MAT | 103 | Analytical Geometry and Calculus I | 5 | 0 | 5 |
| PSY | 103 | Physics | 3 | 2 | 4 |
| DFT | 106 | Graphic Analysis | 0 | 6 | 2 |
| CHM | 222 | Quantitative Analysis | 3 | 6 | 5 |
| | | | 14 | 14 | 19 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MEC | 116 | Engineering Materials | 3 | 0 | 3 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| CHM | 223 | Quantitative Analysis | 2 | 9 | 5 |
| CHM | 231 | Organic Chemistry | 3 | 6 | 5 |
| | | | 11 | 15 | 16 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MEC | 235 | Hydraulics and Pneumatics | 3 | 3 | 4 |
| CHM | 232 | Organic Chemistry | 3 | 6 | 5 |
| CHM | 241 | Industrial Chemical Analysis | 3 | 9 | 6 |
| | | | 9 | 18 | 15 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| BUS | 110 | Office Machines | 1 | 4 | 3 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| CHM | 242 | Industrial Chemical Analysis | 3 | 9 | 6 |
| CHM | 250 | Physical Chemistry | 3 | 2 | 4 |
| | | | 10 | 15 | 16 |

# CIVIL ENGINEERING TECHNOLOGY

Construction technicians perform many of the planning and supervisory tasks necessary in the construction of highways, bridges, power plants, dams, missile sites, airfield, water and sewage treatment plants, industrial buildings and utilities. In the planning stages of construction they may be engaged in estimating costs, ordering materials, interpreting specifications, computing earthwork and fills and storm drainage requirements, surveying or drafting. Once the actual construction work has begun, many technicians perform supervisory functions. Some may be responsible for seeing that construction activities are performed in proper sequence, and for inspecting the work as it progresses for conformance with blueprints and specifications.

## OCCUPATIONAL OPPORTUNITIES

An individual upon graduating from this program should qualify for various jobs such as Instrument Man, Party Chief, Quantity Survey Man, Material Tester (Laboratory Testing), Expediter, Field Clerk, Materials Man, Construction Equipment and Materials Salesman, and Field Draftsman.

### CIVIL ENGINEERING TECHNOLOGY

**Courses by Quarter for 1970-71 Year**

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ECO | 105 | Economics | 5 | 0 | 5 |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| CIV | 101 | Surveying | 2 | 6 | 4 |
| | | | 15 | 6 | 17 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| DFT | 101 | Drafting | 1 | 5 | 3 |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| PHY | 101 | Physics | 3 | 2 | 4 |
| CIV | 201 | Properties of Engineering Materials | 2 | 3 | 3 |
| | | | 14 | 10 | 18 |
| **Third Quarter** | | | | | |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| PHY | 102 | Physics | 3 | 2 | 4 |
| CIV | 102 | Surveying | 2 | 6 | 4 |
| CIV | 114 | Statics | 5 | 0 | 5 |
| | | | 18 | 8 | 21 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MAT | 103 | Analytical Geometry and Calculus I | 5 | 0 | 5 |
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| DFT | 104 | Civil Drafting | 0 | 6 | 2 |
| CIV | 103 | Surveying | 2 | 6 | 4 |
| CIV | 216 | Strength of Materials | 3 | 2 | 4 |
| | | | 13 | 14 | 18 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| CIV | 218 | Plain and Reinforced Concrete | 4 | 4 | 6 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| PHY | 103 | Physics — Electricity | 3 | 2 | 4 |
| CIV | 202 | Properties of Soils | 2 | 3 | 3 |
| CIV | 217 | Construction Methods and Equipment | 3 | 2 | 4 |
| | | | 15 | 11 | 20 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| CIV | 220 | Construction Planning | 2 | 3 | 3 |
| CIV | 225 | Estimates, Codes and Specifications | 3 | 6 | 5 |
| CIV | 219 | Steel and Timber Construction | 3 | 2 | 4 |
| | | | 11 | 13 | 16 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| CIV | 227 | Construction of Highways | 3 | 2 | 4 |
| CIV | 204 | Surveying | 2 | 6 | 4 |
| CIV | 228 | Engineering Relations | 2 | 0 | 2 |
| CIV | 229 | Branches of Engineering Technology | 3 | 0 | 3 |
| | | | 13 | 8 | 16 |

# DRAFTING AND DESIGN TECHNOLOGY

The drafting curriculum trains the beginning student in the basic fundamentals to produce neat and accurate engineering drawings. The Student then advances to selected design problems relating to sound mechanical engineering practice.

Supporting courses are provided to give a solid background in principles, methods, processes, and general studies to help toward success.

## OCCUPATIONAL OPPORTUNITIES

Job opportunities are found in machine, plant, tool and product engineering offices, with a potential to progress up to the classification of designer.

### DRAFTING AND DESIGN TECHNOLOGY
### ASSOCIATE IN APPLIED SCIENCE DEGREE

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| DFT | 101 | Drafting | 1 | 5 | 3 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| MEC | 101 | Machine Processes | 0 | 6 | 2 |
| | | | 12 | 11 | 16 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| PHY | 101 | Physics: Properties of Matter | 3 | 2 | 4 |
| DFT | 102 | Drafting | 1 | 5 | 3 |
| MEC | 102 | Machine Processes | 0 | 6 | 2 |
| | | | 12 | 13 | 17 |
| **Third Quarter** | | | | | |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| PHY | 102 | Physics: Mechanics | 3 | 2 | 4 |
| DFT | 103 | Drafting | 1 | 5 | 3 |
| DFT | 204 | Descriptive Geometry | 2 | 6 | 4 |
| | | | 11 | 13 | 16 |
| **Fourth Quarter** | | | | | |
| MAT | 103 | Analytical Geometry and Calculus I | 5 | 0 | 5 |
| MEC | 105 | Statics | 5 | 0 | 5 |
| MEC | 210 | Physical Metallurgy | 3 | 3 | 4 |
| DFT | 201 | Design Dratfing | 2 | 6 | 4 |
| | | | 15 | 9 | 18 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MEC | 205 | Strength of Materials | 5 | 0 | 5 |
| MEC | 235 | Hydraulics and Pneumatics | 3 | 3 | 4 |
| PHY | 103 | Physics: Electricity | 3 | 2 | 4 |
| DFT | 205 | Design Drafting | 2 | 6 | 4 |
| | | | 13 | 11 | 17 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| DFT | 211 | Mechanisms and Kinematics Design | 2 | 6 | 4 |
| DFT | 212 | Jig and Fixture Design | 2 | 6 | 4 |
| MEC | 214 | Tool Engineering | 3 | 0 | 3 |
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| | | | 13 | 14 | 18 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| DFT | 206 | Design Drafting | 2 | 6 | 4 |
| ELC | 201 | Electrical Machinery | 3 | 0 | 3 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| DFT | 242 | Architectural Drafting | 2 | 6 | 4 |
| | | | 13 | 12 | 17 |

# ELECTRONICS TECHNOLOGY

The electronic technology curriculum provides a broad theoretical and practical program of training for those who seek electronic careers in industry and government. Step by step instructional techniques are utilized to insure a sound background in theory leading to a broad understanding of complex circuits. In initial laboratory experiments, students develop skills in the use of modern electronic test equipment and measuring instruments. Later laboratory work includes analysis of circuits, construction of circuits and theory of circuit design.

The related subjects include applied physics, mathematics, technical report writing, industrial organization, technical drawing and an introduction to data processing systems. An intensive two-quarter review of mathematics is available for students desiring additional preparation in this subject.

## OCCUPATIONAL OPPORTUNITIES

Research and Development Engineering Assistant, Computer Technician, Manufacturers Technical Representative, Technical Representatives, Medical Electronics Technologists and Laboratory Technician.

### ELECTRONIC TECHNOLOGY

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| SOC | 101 | Social Science | 3 | 0 | 3 |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| ELN | 101 | Fundamentals of D.C. | 4 | 6 | 6 |
| | | | 15 | 6 | 17 |
| **Second Quarter** | | | | | |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| PHY | 101 | Physics | 3 | 2 | 4 |
| ENG | 102 | Composition | 3 | 0 | 3 |
| ELN | 102 | Fundamentals of A.C. | 4 | 6 | 6 |
| | | | 15 | 8 | 18 |
| **Third Quarter** | | | | | |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| PHY | 102 | Physics | 3 | 2 | 4 |
| ELN | 103 | Network Analysis | 4 | 6 | 6 |
| ELN | 105 | Vacuum Tubes, Theory and Applications | 4 | 6 | 6 |
| | | | 16 | 14 | 21 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MAT | 103 | Analytical Geometry and Calculus I | 5 | 0 | 5 |
| MAT | 121 | Numbering Systems and Boolean Algebra | 3 | 0 | 3 |
| PHY | 104 | Physics | 3 | 2 | 4 |
| DFT | 101 | Technical Drafting | 1 | 5 | 3 |
| ELN | 205 | Introduction to Solid State Devices | 4 | 6 | 6 |
| | | | 16 | 13 | 21 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MAT | 201 | Calculus II | 5 | 0 | 5 |
| PHY | 201 | Physics | 3 | 2 | 4 |
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| ELN | 210 | Transistor Amplifier Analysis | 4 | 6 | 6 |
| ELN | 216 | Fundamentals of Transmission | 3 | 2 | 4 |
| | | | 18 | 10 | 22 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| ELN | 206 | Circuit Analysis | 4 | 4 | 6 |
| ELN | 214 | Logic Circuits | 4 | 4 | 6 |
| ELN | 233 | Introduction to Special Devices | 4 | 4 | 6 |
| | | | 15 | 14 | 22 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PSY | 206 | xPsychology APPLIED | 3 | 0 | 3 |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| ELN | 221 | Electronic Circuit Design | 1 | 6 | 4 |
| ELN | 215 | Waveshaping and Pulse Circuits | 4 | 4 | 6 |
| ELN | 235 | Industrial Instrumentation | 3 | 2 | 4 |
| | | | 14 | 12 | 20 |

# MECHANICAL ENGINEERING TECHNOLOGY

This curriculum offers a broad, well-rounded education to the young man desiring to become an engineering technician. The wide scope of subject matter covered prepares the graduate for employment in many branches of the mechanical engineering field.

The general knowledge of mechanical principles is supplemented by the elective courses offered. Depending on the selection of electives, the student may pursue further study in machine design, automation, control systems, instrumentation, or associated business principles.

The student learns to apply the theory and principles of basic mechanical engineering to the design, development and testing of machinery under the guidance of the Engineering Staff. He learns to prepare detail and design drawings to scale, and also drawing in perspective. The student is prepared to provide all necessary sketches, illustrations, orothographic drawings as well as preliminary, final and testing specifications for design or redesign of most types of industrial machinery or tooling. He is taught to plan scientific tests or evaluations to discover cause of breakdown. The student is prepared to support the engineering work needed for design or utilization of new machines, redesigned machines or machine components, sub-assemblies and complete assembly lines. He is trained in industrial safety techniques, proper approaches to cooperation with fellow workers, and the basic industrial management techniques.

## OCCUPATIONAL OPPORTUNITIES

The graduate is prepared for jobs such as mechanical engineering technician, experimental technician, laboratory-development technician, general engineering technician, engineering aide, and shop foreman trainee.

### MECHANICAL ENGINEERING TECHNOLOGY CURRICULUM

| Course | | Title | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 100 | Basic Mathematics | 5 | 0 | 5 |
| DFT | 101 | Technical Drafting | 1 | 5 | 3 |
| MEC | 111 | Manufacturing Processes | 3 | 3 | 4 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| | | | 15 | 8 | 18 |

**Second Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 102 | Composition | 3 | 0 | 3 |
| MAT | 101 | Algebra and Trigonometry I | 5 | 0 | 5 |
| PHY | 101 | Physics | 3 | 2 | 4 |
| DFT | 102 | Technical Drafting | 1 | 5 | 3 |
| MEC | 112 | Manufacturing Processes | 3 | 3 | 4 |
| | | | 15 | 10 | 19 |

**Third Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| MAT | 102 | Algebra and Trigonometry II | 5 | 0 | 5 |
| PHY | 102 | Physics | 3 | 2 | 4 |
| CHM | 101 | General Chemistry | 2 | 3 | 4 |
| MEC | 212 | Practical Automation | 3 | 2 | 4 |
| | | | 16 | 7 | 20 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| MAT | 103 | Analytical Geometry and Calculus I | 5 | 0 | 5 |
| PHY | 103 | Physics | 3 | 2 | 4 |
| MEC | 105 | Statics | 5 | 0 | 5 |
| MEC | 210 | Physical Metallurgy | 3 | 3 | 4 |
| | | | 19 | 5 | 21 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| MAT | 201 | Calculus II | 5 | 0 | 5 |
| ELC | 205 | Applied Electricity | 2 | 4 | 4 |
| MEC | 205 | Strength of Materials | 5 | 0 | 5 |
| MEC | 235 | Hydraulics and Pneumatics | 3 | 3 | 4 |
| | | | 15 | 7 | 18 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| EDP | 100 | Introduction to Data Processing | 3 | 2 | 4 |
| MEC | 208 | Machine Design | 4 | 0 | 4 |
| MEC | 206 | Dynamics | 3 | 0 | 3 |
| Elective | | Engineering, Shop or Business (4).... | | (4) | 5 |
| | | Up to: | 14 | 6 | 16 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ISC | 102 | Industrial Safety | 3 | 0 | 3 |
| BUS | 101 | Introduction to Business | 3 | 2 | 4 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| MEC | 220 | Power Systems | 3 | 0 | 3 |
| MEC | 209 | Machine Design | 4 | 0 | 4 |
| | | | 16 | 2 | 17 |

# Division of Hospitality Education

The following areas of study are included in the school of Hospitality Education:

Culinary Technology: Associate of Culinary Technology

Culinary Arts: Diploma awarded for one year program

Hotel and Restaurant Management — A.A.S. degree conferred

The areas of study in the Division of Hospitality Education are generally seven quarters in duration and will require from twenty to thirty hours per week of course work. If a student elects to enroll in the school through evening division because of his work load, the time required for completion will be increased.

In addition to regular classroom work each student will be required to spend additional time on outside work assignments. This will normally be conducted in the summer quarter.

**Important**

The schools are divided into upper and lower levels. In order for a student to advance into the upper level (2nd year) he or she must complete the lower (1st year) with a grade point average of 1.75 level work and be recommended by the chairman of the major department in which he is enrolled.

## SPECIFIC ENTRANCE REQUIREMENTS FOR HOSPITALITY PROGRAMS

1. Must be a high school graduate or have a State approved equivalent education.
2. Must submit the transcripts of high school and post-high school education.
3. Must demonstrate suitability for Hotel or Culinary programs training as determined by appropriate tests.
4. Must be acceptable condition of physical and mental health and meet state requirements for food handling certificate.
5. Must have a personal interview with school representatives.
6. Must have a personal interview with department representative.

# CULINARY TECHNOLOGY

This curriculum will award a one year diploma or award a two year Associate of Culinary Technology Diploma.

To achieve these objectives, these programs are directed toward supplying, through a combination of courses, in-house observation and experience and on-the-job training, the knowledge of skills which will contribute to the success of the future graduate in the Hospitality Industry.

These courses are designed to teach the students to search, to select and to taste. The art of fine cuisine is a profession; therefore, the emphasis will be directed on preparing the student for the hotel/motel restaurant and associated fields.

## OCCUPATIONAL OPPORTUNITIES

For graduates the employment opportunities are as follows: catering director, food director, chef, food buyer, dining room manager and many other.

-:- -:- -:-

Uniforms will be required by all students. These may be purchased or rented at a reasonable cost.

## CULINARY ARTS

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 101 | Business Mathematics | 5 | 0 | 5 |
| HMF | 101 | Hotel-Motel Restaurant Orientation | 3 | 0 | 3 |
| CSP | 101 | Food Preparation I | 4 | 8 | 7 |
| | | | 15 | 8 | 18 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| HMF | 104 | Food Purchasing I | 2 | 2 | 3 |
| CSP | 103 | Food Preparation II | 3 | 12 | 7 |
| CSP | 105 | Baking I | 1 | 3 | 2 |
| | | | 9 | 17 | 15 |
| **Third Quarter** | | | | | |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| HMF | 109 | Food Purchasing II | 2 | 2 | 3 |
| CSP | 106 | Food Preparation III | 3 | 12 | 7 |
| CSP | 108 | Menu Planning | 1 | 4 | 3 |
| CSP | 112 | Baking II | 1 | 3 | 2 |
| | | | 10 | 21 | 18 |
| **Fourth Quarter** | | | | | |
| CSP | 110 | Supervised Work Experience | 3 | 36 | 15 |

# CULINARY TECHNOLOGY

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 110 | Business Mathematics | 5 | 0 | 5 |
| HMF | 101 | Hotel-Motel Restaurant Orientation | 3 | 0 | 3 |
| CSP | 101 | Food Preparation I | 4 | 8 | 7 |
| | | | 15 | 8 | 18 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| HMF | 104 | Food Purchasing I | 2 | 2 | 3 |
| CSP | 103 | Food Preparation II | 3 | 12 | 7 |
| CSP | 105 | Baking I | 1 | 3 | 2 |
| | | | 9 | 17 | 15 |
| **Third Quarter** | | | | | |
| ENG | 206 | ~~Business~~ ORAL Communications | 3 | 0 | 3 |
| HMF | 109 | Food Purchasing II | 2 | 2 | 3 |
| CSP | 106 | Food Preparation III | 3 | 12 | 7 |
| CSP | 108 | Menu Planning | 1 | 4 | 3 |
| CSP | 112 | Baking II | 1 | 3 | 2 |
| | | | 10 | 21 | 18 |
| **Fourth Quarter** | | | | | |
| CSP | 110 | Supervised Work Experience | 3 | 36 | 15 |
| **Fifth Quarter** | | | | | |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| CSP | 201 | Food Preparation IV | 3 | 12 | 7 |
| CSP | 203 | Dining Room I | 1 | 2 | 2 |
| CSP | 113 | Baking III | 1 | 3 | 2 |
| | | | 9 | 21 | 17 |
| **Sixth Quarter** | | | | | |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| HMF | 108 | Food Cost Control | 3 | 0 | 3 |
| HMF | 215 | Beverage Cost Control | 3 | 3 | 4 |
| CSP | 207 | Food Preparation V Buffet | 3 | 12 | 7 |
| CSP | 208 | Convenience Foods | 2 | 0 | 2 |
| | | | 14 | 15 | 19 |
| **Seventh Quarter** | | | | | |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| HMF | 209 | Personnel Management Hospitality Industry | 3 | 0 | 3 |
| CSP | 210 | Food Preparation VI | 3 | 12 | 7 |
| CSP | 214 | Dining Room II | 1 | 3 | 2 |
| | | | 10 | 15 | 15 |

# HOTEL AND RESTAURANT MANAGEMENT

The student enrolled in this curriculum will work with all aspects of the hospitality industry. The lodge on campus will be under the direction of this curriculum. This will provide actual experience in the field. The students will also work with the culinary technology program on campus to gain knowledge of food service operations.

## OCCUPATIONAL OPPORTUNITIES

The total curriculum will provide the foundation for a graduate to enter the Hospitality Industry in a training capacity. After an application of the knowledge gained from the curriculum and training program on the job, the individual will be able to assume the responsibility of management: Catering Manager, Food & Beverage Controller, Managing Director, Food & Beverage Manager, Restaurant Manager, Assistant Manager, Front Office Management, Director of Sales, Purchasing Agent, and Executive Housekeeper.

## HOTEL-~~MOTEL~~ RESTAURANT MANAGEMENT

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | Grammar | 3 | 0 | 3 |
| MAT | 110 | Business Mathematics | 5 | 0 | 5 |
| BUS | 110 | Business Machines | 1 | 4 | 3 |
| CSP | 101 | Food Preparation I | 3 | 6 | 5 |
| HMF | 101 | Hotel-~~Motel~~ Restaurant Orientation | 3 | 0 | 3 |
| | | | 15 | 10 | 19 |
| **Second Quarter** | | | | | |
| ENG | 102 | Composition | 3 | 0 | 3 |
| CSP | 103 | Food Preparation II | 3 | 6 | 5 |
| HMF | 102 | Business Law | 3 | 0 | 3 |
| HMF | 104 | Food Purchasing I | 2 | 2 | 3 |
| HMF | 107 | Basic Hotel Accounting | 5 | 2 | 6 |
| | | | 16 | 10 | 20 |
| **Third Quarter** | | | | | |
| ENG | 206 | Business Communications | 3 | 0 | 3 |
| CSP | 106 | Food Preparation III | 3 | 9 | 6 |
| HMF | 105 | Hotel Accounting | 5 | 2 | 6 |
| HMF | 108 | Food Cost Control | 3 | 0 | 3 |
| HMF | 109 | Food Purchasing II | 2 | 2 | 3 |
| | | | 16 | 13 | 21 |
| **Fourth Quarter** | | | | | |
| HMF | 110 | Supervised Work Experience | 0 | 30 | 15 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| ECO | 105 | Economics | 5 | 0 | 5 |
| ENG | 204 | Oral Communications | 3 | 0 | 3 |
| HMF | 205 | Front Office Procedure | 2 | 4 | 4 |
| HMF | 206 | Business Management in Hotel-Motel and Restaurants | 3 | 2 | 4 |
| HMF | 207 | Laws of Innkeeping | 5 | 0 | 5 |
| | | | 18 | 6 | 21 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| SOC | 201 | Social Science | 3 | 0 | 3 |
| BUS | 229 | Taxes | 3 | 2 | 4 |
| HMF | 208 | Supervisory Housekeeping | 3 | 4 | 5 |
| HMF | 211 | Food Service Management | 2 | 6 | 4 |
| HMF | 215 | Beverage Cost Control | 3 | 3 | 4 |
| | | | 14 | 15 | 20 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| BUS | 247 | Insurance | 5 | 0 | 5 |
| HMF | 209 | Personnel Management in the Hospitality Industry | 3 | 0 | 3 |
| HMF | 212 | Sales Promotion and Advertisement | 2 | 2 | 3 |
| HMF | 214 | Engineering Layout and Design | 2 | 4 | 4 |
| | | | 15 | 6 | 18 |

# DIVISION OF ALLIED HEALTH EDUCATION

Since 1959 Asheville-Buncombe Technical Institute has accepted in a gradual and orderly manner as part of its responsibility the area of health education in terms of curriculum and upgrading programs. With the increased emphasis on health on a national level, and with an ever increasing need for medical care facilities and medically trained personnel in the geographical area served by Asheville-Buncombe Technical Institute, it became apparent that a permanent paramedical facility was needed on the Asheville-Buncombe Technical Institute campus to help alleviate this critical need for trained personnel. A paramedical facility was approved in 1968, and the construction and equipping of this building should be completed by September, 1971. Asheville-Buncombe Technical Institute currently has a practical nurse education program, and it will be the first curriculum program in the new facility.

This comprehensive health program will afford the opportunity for extensive and intensive study in several areas of health. It will enable the student to engage in a health career of his choice and acquire sufficient knowledge of health so that he may be able to enjoy a healthful and satisfying life and also develop an understanding in helping those with whom he comes in contact in his work and everyday living.

The Department of Natural Sciences is also a part of this program and will complement the entire curriculum program on the campus.

# HEALTH OCCUPATIONS

Because of expanding health technologies, the changing roles of ancillary personnel in the health fields, and new concepts in the use of auxiliary personnel by professionals, the idea of a building to house all of the educational facilities to train people for the health careers came into existence. Asheville-Buncombe Technical Institute is in the planning stages of this building now, and it is anticipated that the building will be completed by the summer of 1971. Meanwhile, Asheville-Buncombe Technical Institute offers training in many areas such as the following.

Aide and Orderly Training

Refresher Courses for Registered Nurses

Refresher Courses for Licensed Practical Nurses

Refresher Courses for Private Duty Nurses

Ward Clerk Training

Nurse Assistant Training

Speech for Laryngectomees

Most of these classes are held in hospitals so that the students can have the advantage of equipment and personnel in their particular areas of study.

# ASSOCIATE DEGREE NURSING

Nursing is a profession devoted to conserving life and promoting health. This two year program consists of the study of nursing theory and practice as well as such general education subjects as English and the natural and social sciences. Selected patient experiences are provided in local general hospitals and other community health facilities. These experiences include the care of adults, children, mothers and their infants.

The Associate in Applied Science is awarded upon successful completion of this program. The graduate is eligible to take the state examination for licensure as a registered nurse.

## SEQUENCE OF REQUIRED COURSES

| | | | Hours Per Week | | Quarter Hours |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| **Course** | **Title** | | **Class** | **Lab** | **Credit** |
| CHM | 102 | Basic Chemistry | 2 | 3 | 3 |
| ENG | 101 | English Grammar | 3 | 0 | 3 |
| BIO | 101 | Anatomy and Physiology I | 4 | 3 | 5 |
| NUR | 101 | Fundamentals of Nursing I | 4 | 3 | 5 |
| | | | 13 | 9 | 16 |
| **Second Quarter** | | | | | |
| ENG | 102 | English Composition | 3 | 0 | 3 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| BIO | 102 | Anatomy and Physiology II | 4 | 3 | 5 |
| NUR | 103 | Fundamentals of Nursing II | 4 | 7 | 6 |
| | | | 14 | 10 | 17 |
| **Third Quarter** | | | | | |
| BIO | 103 | Microbiology | 4 | 3 | 5 |
| PSY | 101 | Introduction to Psychology | 3 | 0 | 3 |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| NUR | 105 | Fundamentals of Nursing III | 5 | 6 | 7 |
| | | | 15 | 9 | 18 |
| **Fourth Quarter** | | | | | |
| SOC | 203 | Family Sociology | 3 | 0 | 3 |
| NUR | 108 | Growth and Development | 3 | 0 | 3 |
| NUR | 107 | Parental and Child Health | 5 | 12 | 9 |
| | | | 11 | 12 | 15 |
| **Fifth Quarter** | | | | | |
| ENG | 207 | American Literature | 3 | 0 | 3 |
| | | Elective | 3 | 0 | 3 |
| NUR | 210 | Nursing in Physical and Mental Illness I | 5 | 12 | 9 |
| | | | 11 | 12 | 15 |
| **Sixth Quarter** | | | | | |
| PSY | 203 | Abnormal Psychology | 3 | 0 | 3 |
| NUR | 211 | Nursing in Physical and Mental Illness II | 5 | 12 | 9 |
| NUR | 212 | Trends in Nursing | 3 | 0 | 3 |
| | | | 11 | 12 | 15 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| NUR | 214 | Nursing in Physical and Mental Illness III | 5 | 12 | 9 |
| NUR | 215 | Community Health | 3 | 0 | 3 |
| NUR | 216 | Professional Ethics | 2 | 0 | 2 |
| | | Elective | 3 | 0 | 3 |
| | | | 13 | 12 | 17 |

## DENTAL HYGIENE

The dental hygienist usually is a young lady meeting college entrance standards, attaining an above average position in her graduating class and earning a creditable score on several batteries of tests. In her quest for a professional career she is prepared for health services rich in human contacts. She achieves satisfaction from helping others and gains security in an expanding and highly regarded profession as a necessary member of the dental health team. Her duties are myriad and her responsibilities challenging.

The dental hygiene student will cultivate the judgment and skill prerequisite to providing to the public oral health care under the supervision of the dentist within the limits of the ethics and laws of the state.

The curriculum must satisfy the educational, professional, ethical and legal standards of the American Dental Association Council on Dental Education, the North Carolina State Department of Community Colleges, the North Carolina State Board of Dental Examiners, the American Dental Hygienists Association, the North Carolina Dental Society and the North Carolina Dental Hygienists Association. Graduates in this curriculum receive the degree Associate in Applied Science in Dental Hygiene.

**This curriculum is scheduled to start in the new paramedical facility in the Fall of 1972.** The following proposed sequence of courses is subject to change pending final approval by all agencies concerned.

### SUGGESTED SEQUENCE OF REQUIRED COURSES

| Course Title | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 101 | English Grammar | 3 | 0 | 3 |
| DHY | 101 | Dental Anatomy I | 2 | 6 | 4 |
| BIO | 101 | Human Anatomy and Physiology I | 4 | 3 | 5 |
| DHY | 102 | Preventive Dentistry I | 3 | 0 | 3 |
| | | | 12 | 9 | 15 |
| **Second Quarter** | | | | | |
| ENG | 102 | English Composition | 3 | 0 | 3 |
| DHY | 104 | Dental Anatomy II | 2 | 6 | 4 |
| BIO | 102 | Human Anatomy and Physiology II | 4 | 3 | 5 |
| DHY | 105 | Preventive Dentistry II | 3 | 0 | 3 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| | | | 15 | 9 | 18 |
| **Third Quarter** | | | | | |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| BIO | 105 | General Bacteriology | 4 | 2 | 5 |
| CHM | 102 | Chemistry | 2 | 3 | 3 |
| PSY | 205 | Personality Theory | 5 | 0 | 5 |
| DHY | 107 | Dental Hygiene I | 1 | 9 | 4 |
| | | | 15 | 14 | 20 |



DID NOT CHECK

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| DHY | 108 | Office Emergencies | 2 | 0 | 2 |
| DHY | 109 | Dental Materials | 3 | 4 | 5 |
| DHY | 110 | Preventive Dentistry III | 3 | 0 | 3 |
| DHY | 111 | Dental Hygiene II | 0 | 13 | 5 |
| DHY | 112 | Roentgenology | 2 | 0 | 2 |
| ENG | 104 | Oral Communications | 3 | 0 | 3 |
| | | | 13 | 17 | 20 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| DHY | 214 | Pharmacology | 3 | 0 | 3 |
| DHY | 215 | Dental Hygiene III | 0 | 17 | 6 |
| DHY | 216 | Preventive Dentistry IV | 2 | 0 | 2 |
| DHY | 217 | Embryology and Histology | 4 | 2 | 5 |
| ECO | 102 | Economics | 3 | 0 | 3 |
| | | | 12 | 19 | 19 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| DHY | 219 | Pathology | 3 | 0 | 3 |
| DHY | 220 | Head and Neck Anatomy | 2 | 0 | 2 |
| DHY | 221 | Nutrition | 3 | 0 | 3 |
| PSY | 208 | Human Development | 5 | 0 | 5 |
| DHY | 222 | Dental Hygiene IV | 0 | 17 | 6 |
| | | | 13 | 17 | 19 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| SOC | 201 | Social Science | 3 | 0 | 3 |
| DHY | 224 | First Aid | 2 | 0 | 2 |
| DHY | 225 | Dental Hygiene V | 0 | 20 | 7 |
| DHY | 226 | Practice Administration | 3 | 0 | 3 |
| | | | 8 | 20 | 15 |

## DENTAL ASSISTING

The primary function of the dental assistant is to serve as the chairside assistant to the dentist. Here she plays an active and integral role in dental procedures by preparing patients for treatment, setting out instruments in the order in which they are to be used, keeping the operation field clear during treatment, mixing filling materials and dental cements and passing these materials and instruments to the dentist as he needs them.

The trained dental assistant also checks equipment, sterilizes instruments and engages in such laboratory work as making study models of teeth, casting inlays, processing x-ray films and mounting them in appropriate holders.

In many offices the dental assistant also serves as receptionist and office manager, schedules appointments and keeps records.

**The curriculum is scheduled to start in the Fall of 1972 in the new paramedical facility.** This proposed sequence of courses is subject to change pending final approval of all agencies concerned.

### SUGGESTED SEQUENCE OF REQUIRED COURSES

| Course Title | | | Hours Per Week | | Quarter Hours |
|---|---|---|---|---|---|
| **First Quarter** | | | Class | Lab | Credit |
| DEN | 1101 | Anatomy and Physiology | 3 | 0 | 3 |
| DEN | 1102 | Introduction to Dental Assisting | 2 | 0 | 2 |
| DEN | 1103 | Dental Materials | 3 | 9 | 6 |
| DEN | 1104 | Preclinical Science I | 3 | 3 | 4 |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| | | | 16 | 12 | 20 |
| **Second Quarter** | | | | | |
| DEN | 1106 | Preclinical Science II | 3 | 0 | 3 |
| DEN | 1107 | Dental Roentgenology | 2 | 6 | 4 |
| DEN | 1108 | Clinical Procedures I | 2 | 6 | 4 |
| BUS | 1101 | Bookkeeping | 2 | 4 | 4 |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| | | | 12 | 16 | 18 |
| **Third Quarter** | | | | | |
| DEN | 1111 | Clinical Procedures II | 4 | 3 | 5 |
| DEN | 1112 | Dental Office Management | 4 | 3 | 5 |
| DEN | 1113 | Dental Office Practice I | 0 | 10 | 4 |
| ENG | 1103 | Report Writing | 3 | 0 | 3 |
| BUS | 1102 | Typing or Elective* | 1 | 4 | 3 |
| | | | 12 | 20 | 20 |
| **Fourth Quarter** | | | | | |
| ENG | 1104 | Speech | 3 | 0 | 3 |
| DEN | 1114 | Dental Office Practice II | 0 | 24 | 8 |
| DEN | 1115 | Dental Assistant Seminar | 2 | 0 | 2 |
| | | | 5 | 24 | 13 |

* Approved by Dental Assisting Department



DID NOT CHECK.

## MEDICAL LABORATORY ASSISTANT

The Medical Laboratory Assistant Program provides specialized training for employment in hospital laboratories and medical clinics. The laboratory assistant works under the direct supervision of a medical technologist, a pathologist, or a qualified physician, performing routine laboratory procedures in bacteriology, blood banking, chemistry, hematology, parasitology, serology and urinalysis. Specific tasks might include: collecting blood specimens; grouping and typing blood; preparing and staining slides of microorganisms; concentrating specimens for parasitologic study; analyzing blood and body fluids, and performing electrocardiograms.

The student applying for the program must be a high school graduate and demonstrate an interest and ability in science and mathematics. A personal interview with the chairman of this department is required for admission.

The four quarter course is twelve months in length and includes classroom instruction in addition to laboratory and clinical experience. The student who completes the requirements will receive a diploma from the Institute.

Graduates of this curriculum are eligible to take the national examination of the Board of Certified Laboratory Assistants. Those passing the examination are awarded the title of Certified Laboratory Assistant.

### M.L.A. CURRICULUM

| First Quarter | | | Class | Lab. | Clinical | Credit |
|---|---|---|---|---|---|---|
| MLA | 1000 | Orientation | 1 | 0 | 0 | 1 |
| MLA | 1002 | Basic Science | 1 | 0 | 0 | 1 |
| MLA | 1004 | Urinalysis | 1 | 4 | 0 | 3 |
| MLA | 1005 | Hematology I | 1 | 2 | 0 | 2 |
| MLA | 1001 | Anatomy | 2 | 0 | 0 | 2 |
| MLA | 1003 | Clinical Experience I | 0 | 0 | 27 | 9 |
| | | | 6 | 6 | 27 | 18 |
| **Second Quarter** | | | | | | |
| ENG | 1101 | Reading Improvement | 2 | 0 | 0 | 2 |
| MLA | 1008 | Blood Bank I | 1 | 0 | 0 | 1 |
| MLA | 1009 | Clinical Chemistry I | 2 | 4 | 0 | 4 |
| MLA | 1010 | Hematology II | 1 | 2 | 0 | 2 |
| MLA | 1012 | Clinical Experience II | 0 | 0 | 27 | 9 |
| | | | 6 | 6 | 27 | 18 |

**Third Quarter**

| | | | | | | |
|---|---|---|---|---|---|---|
| ENG | 1102 | Communication Skill | 3 | 0 | 0 | 3 |
| MLA | 1014 | Clinical Chemistry II | 2 | 4 | 0 | 4 |
| MLA | 1015 | Blood Bank II | 1 | 0 | 0 | 1 |
| MLA | 1016 | Hematology III | 1 | 2 | 0 | 2 |
| MLA | 1018 | Clinical Experience III | 0 | 0 | 27 | 9 |
| | | | 7 | 6 | 27 | 19 |

**Fourth Quarter**

| | | | | | | |
|---|---|---|---|---|---|---|
| MLA | 1019 | Microbiology | 2 | 0 | 0 | 2 |
| MLA | 1020 | Parasitology | 1 | 2 | 0 | 2 |
| MLA | 1021 | Clinical Experience IV | 0 | 0 | 33 | 11 |
| | | | 3 | 2 | 33 | 15 |

# PRACTICAL NURSE EDUCATION

## INTRODUCTION

The accelerated growth of population in North Carolina and rapid advancement in medical technology demand an increased number of well-trained personnel for health services. Realizing this need, State Department of Community Colleges, in conjunction with local hospitals, administers programs of practical nurse education in local school systems, community colleges and technical institutes.

The aim of the Practical Nurse Education Program is to prepare qualified persons for participation in care of patients of all ages, in various states of dependency, and with a variety of illness conditions.

Throughout the one year program, the student is expected to progress in the acquisition of knowledge, the performance of nursing skills, and adjustment to the nursing situation.

Graduates of this accredited program of practical nurse education are eligible to take the licensing examination given by the North Carolina Board of Nursing. A passing score entitles the individual to receive a license and to use the legal title "Licensed Practical Nurse." The Licensed Practical Nurse can apply for licensure in other states.

Criteria for selection of students are:

1. Performance on pre-entrance tests.
2. Interviews with practical nursing faculty.
3. High school record or G.E.D. certificate.
4. Character references.
5. Reports of medical and dental examinations.
6. Interest in nursing.

NOTE: The State Board of Nursing may deny license to individuals "convicted of a felony or any other crime involving moral turpitude."

## OCCUPATIONAL OPPORTUNITIES

The LPN is prepared to function in a variety of situations: hospitals of all types, nursing homes, clinics, doctors' and dentists' offices and, in some localities, public health facilities. In all situations the LPN functions under supervision of a registered nurse and/or licensed physician. This supervision may be minimal in situations where the patient's condition is stable and

not complex; or it may consist of continuous direction in situations requiring the knowledge and skills of the registered nurse or physician. In the latter situation, the LPN may function in an assisting role in order to avoid assuming responsibility beyond that for which the one-year program can prepare the individual.

## PRACTICAL NURSE EDUCATION

| Course Title | | | Class | Lab | Clinical | Credit |
|---|---|---|---|---|---|---|
| **First Quarter** | | | | | | |
| PNE | 1011 | Nursing | 12 | 4 | 0 | 14 |
| PNE | 1015 | Health | 3 | 0 | 0 | 3 |
| PNE | 1016 | Science | 10 | 2 | 0 | 11 |
| | | | 25 | 6 | 0 | 28 |
| **Second Quarter** | | | | | | |
| PNE | 1020 | Clinical I - Medical Surgical | 0 | 0 | 15 | 5 |
| PNE | 1022 | Medical-Surgical Nursing I | 12 | 0 | 0 | 12 |
| PNE | 1023 | Maternal and Infant Care | 3 | 2 | 0 | 4 |
| PNE | 1024 | Pediatric Nursing I | 2 | 0 | 0 | 2 |
| | | | 17 | 2 | 15 | 23 |
| **Third Quarter** | | | | | | |
| PNE | 1030 | Clinical II Obstetrics-Pediatrics | 0 | 0 | 21 | 7 |
| PNE | 1032 | Medical-Surgical Nursing II | 10 | 0 | 0 | 10 |
| PNE | 1034 | Pediatric Nursing II | 2 | 0 | 0 | 2 |
| | | | 12 | 0 | 21 | 19 |
| **Fourth Quarter** | | | | | | |
| PNE | 1040 | Clinical III - Medical-Surgical | 0 | 0 | 21 | 7 |
| PNE | 1042 | Medical-Surgical Nursing III | 10 | 0 | 0 | 10 |
| PNE | 1044 | Vocational Adjustments | 2 | 0 | 0 | 2 |
| | | | 12 | 0 | 21 | 19 |

## RADIOLOGIC TECHNOLOGY

The changes created by new techniques have resulted in demands for increased knowledge on the part of radiologic technicians. In addition to mastering X-ray technique, the student must also become familiar with other sources of radiation in order to properly assist the physician. The Associate Degree curriculum provides opportunity for training in this exacting science.

The X-ray technologist may assist in examining for broken bones, tumors or malfunctioning organs, and, under the supervision of a physician, assist in treating diseased or affected areas of the body. Other tasks may include maintaining equipment, ordering supplies, keeping records of patient's films and reports, and mixing solutions. Upon successful completion of the course of study, the student may take examinations to qualify as a registered radiologic technician.

The following proposed sequence of courses is subject to change pending final approval by all agencies concerned.

### RADIOLOGIC TECHNOLOGY

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| RAD | 101 | Positioning I | 2 | 0 | 2 |
| RAD | 102 | Radiographic Exposure I | 2 | 0 | 2 |
| RAD | 103 | Darkroom Technique | 2 | 0 | 2 |
| RAD | 104 | Terminology | 3 | 0 | 3 |
| RAD | 105 | Film Critique I | 1 | 0 | 1 |
| RAD | 106 | Clinical Technique I | 0 | 21 | 7 |
| RAD | 107 | Radiologic Math and Physics | 3 | 0 | 3 |
| | | | 13 | 21 | 20 |
| **Second Quarter** | | | | | |
| RAD | 111 | Positioning II | 2 | 0 | 2 |
| RAD | 112 | Radiographic Exposure II | 1 | 0 | 1 |
| RAD | 113 | Film Critique II | 1 | 0 | 1 |
| RAD | 114 | Clinical Technique II | 0 | 21 | 7 |
| BIO | 101 | Anatomy and Physiology | 4 | 3 | 5 |
| | | | 8 | 24 | 16 |
| **Third Quarter** | | | | | |
| RAD | 121 | Positioning III | 2 | 0 | 2 |
| RAD | 122 | Radiographic Exposure III | 1 | 0 | 1 |
| RAD | 123 | Film Critique III | 1 | 0 | 1 |
| RAD | 124 | Clinical Technique III | 0 | 24 | 8 |
| RAD | 125 | Nursing Procedures | 2 | 0 | 2 |
| ENG | 101 | English Grammar | 3 | 0 | 3 |
| PSY | 101 | Introduction to Psychology | 3 | 0 | 3 |
| | | | 12 | 24 | 20 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| RAD | 131 | Positioning IV | 1 | 0 | 1 |
| RAD | 132 | Film Critique IV | 1 | 0 | 1 |
| RAD | 134 | Clinical Tchnique IV | 0 | 27 | 9 |
| RAD | 135 | Radiological Anatomy | 2 | 0 | 2 |
| ENG | 102 | Composition | 3 | 0 | 3 |
| SOC | 201 | Social Science | 3 | 0 | 3 |
| | | | 10 | 27 | 19 |

**Fifth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| RAD | 201 | Positioning V | 2 | 0 | 2 |
| RAD | 202 | Film Critique V | 1 | 0 | 1 |
| RAD | 203 | Clinical Technique V | 0 | 27 | 9 |
| RAD | 204 | Adv. Radiolgic Tech. I | 1 | 0 | 1 |
| RAD | 205 | Medical Use of Radioisotopes | 1 | 0 | 1 |
| SSC | 211 | Office Procedures | 3 | 0 | 3 |
| | | | 8 | 27 | 17 |

**Sixth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| RAD | 210 | Positioning VI | 2 | 0 | 2 |
| RAD | 211 | Film Critique VI | 1 | 0 | 1 |
| RAD | 212 | Clinical Technique VI | 0 | 30 | 10 |
| RAD | 213 | Adv. Radiologic Tech. II | 1 | 0 | 1 |
| RAD | 214 | Equipment and Maintenance | 1 | 0 | 1 |
| PSY | 206 | Applied Psychology | 3 | 0 | 3 |
| | | | 8 | 30 | 18 |

**Seventh Quarter**

| | | | | | |
|---|---|---|---|---|---|
| RAD | 221 | Positioning VII | 2 | 0 | 2 |
| RAD | 222 | Film Critique VII | 1 | 0 | 1 |
| RAD | 223 | Clinical Technique VII | 0 | 30 | 10 |
| RAD | 224 | Adv. Radiolgic Tech. III | 1 | 0 | 1 |
| RAD | 225 | Principles of Rad. Therapy | 2 | 0 | 2 |
| ENG | 103 | Report Writing | 3 | 0 | 3 |
| | | | 9 | 30 | 19 |

**Eighth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| RAD | 231 | Positioning VIII | 1 | 0 | 1 |
| RAD | 232 | Film Critique VIII | 1 | 0 | 1 |
| RAD | 233 | Clinical Technique VIII | 0 | 36 | 12 |
| | | | 2 | 36 | 14 |

# Division of Vocational Industrial Education

## DIPLOMA AWARDED

The following areas of study are included in the Division of Vocational-Industrial Education:

Air Conditioning-Refrigeration and Sheet Metal

Automotive Mechanics

Carpentry and Cabinetmaking

Diesel Engines and Hydraulic Systems

Machine Shop

Tool and Die Making

Welding

The division will offer a variety of courses on a 4 quarter basis. The areas of study reflect the employment opportunities in the Western part of North Carolina. These curriculums require one full year for completion. If a student elects to enroll in the division through evening school because of his work load, the time required for completion will be doubled. The evening division will offer fifteen hours per week in a particular area of study. The full time schedule will require approximately thirty hours per week.

The student enrolled in the division will spend most of his time in the shop working under actual industrial conditions. The rest of the time will be in the classroom and laboratory in related subjects. The division will require each student to demonstrate an ability to do work in his particular trade. Emphasis will be placed on becoming proficient in the use of machines, instruments, and other equipment related to a particular area of work.

Certain courses will be required of every student irrespective of his curriculum. These courses will enhance the student's ability to become a total individual with a proper attitude toward his work. A thorough understanding of the American system of Economics as it relates to the free enterprise system and corporate structure will be required of every student.

# SPECIFIC ENTRANCE REQUIREMENTS FOR INDUSTRIAL-VOCATIONAL PROGRAM

1. Must be at least 18 years of age or be a high school graduate.
2. Must have satisfactorily completed a minimum of eight (8) units of accredited secondary school work, or pass standard and/or local institute tests.
3. Must furnish transcript of work attempted.
4. Must demonstrate suitability for industrial-vocational training as determined by appropriate tests.
5. Must demonstrate proficiency in mathematics as the industrial-vocational curriculum may require.
6. Must have a personal interview with school representatives.
7. The institute may require a complete physical examination.

# AIR CONDITIONING AND REFRIGERATION

In recent years the use of Air Conditioning and Refrigeration equipment has increased tremendously. Practically all new building construction for business and commercial use have "all year" comfort systems. Many houses now have air conditioning and the trend is toward greater use of "all year" systems of cooling and heating. The food industry is requiring greater use of refrigeration systems in freezing, storage, and display of products. With this great upswing in the use of air conditioning and refrigeration equipment, a greater demand is made on trained personnel to install, operate, maintain and service this equipment.

This curriculum is designed to give the student practical knowledge that will enable them to become capable service men in the industry. The principle objective has been to outline the required technical and related instruction to enable them to understand the basic principles involved in the construction, operation, and maintenance of equipment. Job opportunities exist with companies that specialize in air conditioning, automatic heating, sheet metal and commercial refrigeration installation and service. The service man is employable in areas of sales, maintenance, installation and in the growing field of truck and trailer refrigeration.

## OCCUPATIONAL OPPORTUNITIES

The air conditioning and refrigeration mechanic installs, inspects, maintains, services, and repairs domestic and commercial equipment. Connects motors, compressors, temperature controls, humidity controls, and circulating fans to control panels. Test systems, observes pressure and vacuum gauges and adjusts controls to insure proper operation.

### AIR CONDITIONING AND REFRIGERATION

| First Quarter | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| MAT | 1101 | Fundamentals of Mathematics | 5 | 0 | 5 |
| WLD | 1101 | Basic Welding and Cutting | 1 | 2 | 2 |
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| ELC | 1117 | Basic Electricity | 3 | 0 | 3 |
| AHR | 1121 | Fundamentals of Refrigeration | 3 | 12 | 7 |
| | | | 14 | 14 | 19 |
| **Second Quarter** | | | | | |
| MAT | 1103 | Geometry | 4 | 0 | 4 |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| ELC | 1118 | Applied Electricity | 3 | 2 | 4 |
| BPR | 1104 | Blueprint Reading: Mechanical | 0 | 3 | 1 |
| AHR | 1122 | Fundamentals of Refrigeration Commercial | 3 | 12 | 7 |
| | | | 13 | 17 | 19 |

**Third Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| BPR | 1116 | Blueprint Reading: Air Conditioning | 1 | 3 | 2 |
| AHR | 1123 | Principles of Air Conditioning | 4 | 9 | 7 |
| AHR | 1124 | Principles of Heating: Fuels and Burners | 3 | 6 | 5 |
| | | | 11 | 18 | 17 |

**Fourth Quarter**

| | | | | | |
|---|---|---|---|---|---|
| PHY | 1101 | Applied Science | 3 | 2 | 4 |
| BUS | 1103 | Small Business Operations | 3 | 0 | 3 |
| AHR | 1126 | All Year Comfort Systems and A. C. Servicing | 3 | 6 | 5 |
| AHR | 1127 | Duct Construction and Maintenance | 3 | 6 | 5 |
| | | | 12 | 14 | 17 |

# AUTOMOTIVE MECHANICS

This is a one-year program providing a thorough training in the theoretical as well as manual skills in servicing, testing, and diagnosing. All phases of the electrical system, the power plant, the power train, and the hydraulic braking system will be studied.

The courses are arranged in a sequence that gives the student the required technological and special courses as they are needed to coordinate his laboratory experiences.

Emphasis is placed on the mechanical parts and operation of the various automobile units. Trouble shooting and servicing of the live project are also stressed.

## OCCUPATIONAL OPPORTUNITIES

Auto Mechanic, Truck and Bus Mechanic, Shop Foreman, Maintenance Supervisor, Dealer Service Manager, Sales Technician, Factory Representative, and Experimental Lab Work are among those occupational opportunities awaiting graduates of the Automotive Mechanics Curriculum.

### AUTOMOTIVE MECHANIC

| First Quarter | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| MAT | 1101 | Fundamentals of Mathematics | 5 | 0 | 5 |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| AUT | 1101 | Internal Combustion Engines | 3 | 12 | 7 |
| | | | 13 | 12 | 17 |
| **Second Quarter** | | | | | |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| BPR | 1101 | Blueprint Reading: Power Mechanics | 0 | 3 | 1 |
| PHY | 1101 | Applied Science | 3 | 2 | 4 |
| AUT | 1102 | Engine Electrical and Fuel Systems | 5 | 12 | 9 |
| | | | 11 | 17 | 17 |
| **Third Quarter** | | | | | |
| PHY | 1102 | Applied Science | 3 | 2 | 4 |
| WLD | 1101 | Basic Gas Welding | 1 | 2 | 2 |
| AUT | 1121 | Braking Systems | 3 | 3 | 4 |
| AUT | 1123 | Automotive Chassis and Suspension System | 3 | 9 | 6 |
| | | | 10 | 16 | 16 |
| **Fourth Quarter** | | | | | |
| BUS | 1103 | Small Business Operations | 3 | 0 | 3 |
| AUT | 1124 | Automotive Power Train Systems | 3 | 9 | 6 |
| AUT | 1125 | Automotive Servicing | 3 | 9 | 6 |
| | | | 9 | 18 | 15 |

# BUILDING CONSTRUCTION

This curriculum is designed to subject a student to the fundamentals of carpentry work and the basic procedures of cabinetmaking. Students wil begin with hand tools and progress into the woodworking machines found in a cabinet shop. The carpentry work will begin with the masonry foundation and progress to the finished building. Some consideration will be given to industrial buildings as compared to residential buildings.

Each student will have an opportunity to review the work of other skilled tradesmen such as plumbing and heating, electrical, masonry, and painting and finishing.

With the tremendous population growth and expanding industry this area will serve a need that has unlimited potential.

## OCCUPATIONAL OPPORTUNITIES

Occupational opportunities will be found with private builders, residential builders, general contractors, cabinet shops, and in many industries that maintain their own building.

### BUILDING CONSTRUCTION

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| MAT | 1101 | Fundamentals of Mathematics | 5 | 0 | 5 |
| CAR | 1101 | Carpentry I | 5 | 15 | 10 |
| BPR | 1107 | Blueprint Reading—Const. Trades | 0 | 3 | 1 |
| | | | 12 | 18 | 18 |
| **Second Quarter** | | | | | |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| MAT | 1103 | Geometry | 4 | 0 | 4 |
| CAR | 1102 | Cabinetmaking I | 5 | 15 | 10 |
| BPR | 1109 | Blueprint Reading—Const. Trades | 0 | 3 | 1 |
| | | | 12 | 18 | 18 |
| **Third Quarter** | | | | | |
| (2 Evenings Per Week)* | | | | | |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| MAT | 1104 | Trigonometry | 3 | 0 | 3 |
| (Co-operative Work Experience — Minimum 30 Hours Per Week) | | | | | |
| CAR | 1103 | Carpentry II | 0 | 15 | 5 |
| CAR | 1104 | Cabinetmaking II | 0 | 15 | 5 |
| | | | 6 | 30 | 16 |
| **Fourth Quarter** | | | | | |
| (3 Evenings Per Week)* | | | | | |
| BUS | 1103 | Small Business Operations | 3 | 0 | 3 |
| DFT | 1127 | Gen. Dft. Const. Tr. | 2 | 3 | 3 |
| (Co-operative Work Experience — Minimum 30 Hours Per Week) | | | | | |
| CAR | 1105 | Carpentry III | 0 | 15 | 5 |
| CAR | 1106 | Cabinetmaking III | 0 | 15 | 5 |
| | | | 5 | 33 | 16 |

*NOTE: The students will meet one night per week during spring and summer quarter in addition to class requirements. This time will be used to discuss problems and details of work experience.

# DIESEL ENGINES AND HYDRAULIC SYSTEMS

This curriculum is constructed to give each student a foundation in diesel engine and hydraulic systems and go into the areas of electrical, steering, fuel, suspension, cooling, and lubricating. The various types of power trains will be considered.

The area of heavy equipment maintenance offers a wide variety of occupational opportunities. This program will give a student the basic knowledge and the industry will provide the opportunity to apply this knowledge in a specific area of work. Preventative maintenance for all types of heavy equipment will be stressed throughout the entire course. Some knowledge of the operation of heavy equipment will be presented.

## OCCUPATIONAL OPPORTUNITIES

Opportunities in heavy equipment maintenance will be found within Dealerships, Trucking Companies, Public Transportation Companies, General Contractors, Farm Implement Dealers, and industries that maintain heavy equipment.

### DIESEL

| First Quarter | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| MAT | 1101 | Fundamentals of Math | 5 | 0 | 5 |
| MEC | 1001 | Elementary Hydraulics Principles | 2 | 3 | 4 |
| HEV | 1101 | Diesel Engines Theory and Practice | 3 | 12 | 8 |
| | | | 12 | 15 | 19 |
| **Second Quarter** | | | | | |
| WLD | 1101 | Basic Welding | 1 | 2 | 2 |
| PHY | 1101 | Applied Science | 3 | 2 | 4 |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| HEV | 1102 | Diesel — Electrical, Fuel, Lubricating and Cooling Systems | 3 | 15 | 8 |
| | | | 10 | 19 | 17 |
| **Third Quarter** | | | | | |
| BPR | 1101 | Blueprint Reading: Power Mechanics | 0 | 3 | 1 |
| PHY | 1102 | Applied Science | 3 | 2 | 4 |
| HEV | 1103 | Diesel — Hydraulic Systems, Steering, Suspension, Braking, Power Train | 3 | 15 | 8 |
| HEV | 1104 | Injector Testing and Servicing | 1 | 2 | 3 |
| | | | 7 | 22 | 16 |
| **Fourth Quarter** | | | | | |
| BUS | 1103 | Small Business Operation | 3 | 0 | 3 |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| HEV | 1105 | Diesel Service and Repair | 3 | 18 | 9 |
| | | | 9 | 18 | 15 |

# MACHINE SHOP

The two objectives of the machine shop course are to help men now in machine shops get a solid working knowledge of overall machine shop practice and to provide men not working in machine shops with a broad understanding of machine tools and shop practices. This course presents in a practical manner the details of such basic shop operations as bench work, layout, drilling, lathe work, milling, shaping, planing, broaching, and grinding. The course also covers the operating principles of machine tools, the use of measuring and testing instruments, and blueprint reading.

## OCCUPATIONAL OPPORTUNITIES

Occupational opportunities are found in metal working factories, federal government installations, machine shops, maintenance shops, utility companies, and a wide variety of mechanical and technical activities.

### MACHINE SHOP

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| BPR | 1104 | Blueprint Reading: Mechanical | 0 | 3 | 1 |
| MAT | 1101 | Fundamentals of Methematics | 5 | 0 | 5 |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| MES | 1101 | Machine Shop | 3 | 12 | 7 |
| | | | 13 | 15 | 18 |
| **Second Quarter** | | | | | |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| BPR | 1105 | Blueprint Reading: Mechanical | 0 | 3 | 1 |
| MAT | 1103 | Geometry | 4 | 0 | 4 |
| PHY | 1101 | Applied Science | 3 | 2 | 4 |
| MES | 1102 | Machine Shop | 3 | 12 | 7 |
| | | | 13 | 17 | 19 |
| **Third Quarter** | | | | | |
| BPR | 1106 | Blueprint Reading: Mechanical | 0 | 3 | 1 |
| MAT | 1104 | Trigonometry | 3 | 0 | 3 |
| PHY | 1102 | Applied Science | 3 | 2 | 4 |
| MES | 1103 | Machine Shop | 3 | 12 | 7 |
| MES | 1115 | Treatment of Ferrous Metals | 1 | 3 | 2 |
| | | | 10 | 20 | 17 |
| **Fourth Quarter** | | | | | |
| MAT | 1123 | Machinist Mathematics | 3 | 0 | 3 |
| BUS | 1103 | Small Business Operation | 3 | 0 | 3 |
| WLD | 1101 | Basic Welding | 1 | 2 | 2 |
| MES | 1104 | Machine Shop | 5 | 12 | 9 |
| MES | 1116 | Treatment of Non Ferrous Metals | 1 | 2 | 2 |
| | | | 13 | 16 | 19 |

# TOOL AND DIE MAKING

The Tool and Die maker is the foundation man of many industries. This individual is highly skilled and possesses a tremendous depth of technical knowledge. This curriculum is designed to start an advanced machinist into the elementary requirements of tool and die making and progress into more complex dies, jigs and fixtures, gages, and other areas.

This course will enable the advanced machinist to compare the machines found in a tool and die shop with those found in an average machine shop. Each student will be required to become highly proficient in the use of each machine used in Tool and Die Making. The related courses are designed to give the student an opportunity to advance his knowledge in mathematics, strength of materials, drafting, and hydraulics and pneumatics.

## OCCUPATIONAL OPPORTUNITIES

Occupational opportunities are found in metal working industries, government installations, job shops, captive tool rooms, maintenance shops, and a wide variety of other industries using tools, dies, jigs, and fixtures for repetitive production products.

### TOOL AND DIE MAKING

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **Fifth Quarter** | | | | | |
| DFT | 1207 | General Machine Drafting | 0 | 6 | 2 |
| MAT | 1203 | Trigonometry | 5 | 0 | 5 |
| TDY | 1201 | Machine Processes | 3 | 12 | 7 |
| | | | 8 | 18 | 14 |
| **Sixth Quarter** | | | | | |
| ELC | 1201 | Electricity - Industrial | 2 | 3 | 3 |
| MAT | 1204 | Compound Angles | 5 | 0 | 5 |
| TDY | 1202 | Machine Processes | 3 | 12 | 7 |
| TDY | 1203 | Metallurgy | 3 | 0 | 3 |
| | | | 13 | 15 | 18 |
| **Seventh Quarter** | | | | | |
| BPR | 1208 | Blueprint Reading: Tool and Die | 2 | 3 | 3 |
| TDY | 1204 | Machine Processes | 3 | 12 | 7 |
| TDY | 1205 | Strength of Materials | 5 | 0 | 5 |
| MEC | 1209 | Hydraulics and Pneumatics | 3 | 0 | 3 |
| | | | 13 | 15 | 18 |
| **Eighth Quarter** | | | | | |
| TDY | 1206 | Machine Processes | 3 | 12 | 7 |
| TDY | 1207 | Special Problems and Molding | 3 | 4 | 5 |
| MEC | 1212 | Tool Design Planning | 2 | 3 | 3 |
| | | | 8 | 19 | 15 |

# WELDING

The purpose of this course is to provide a sound training program of the skills involved in welding along with a background of technical information needed by the modern welder.

The curriculum is designed to give the student a sound foundation in the principles, practices, and usages of both gas and electric welding in modern industry. At the same time he will be given practice in the welding skills. In the shop, theory and practice are combined under the guidance of an instructor thoroughly competent in the trade. In addition, instruction is given in the technical fields related to welding under the instruction of specialists in the technical fields.

## OCCUPATIONAL OPPORTUNITIES

Typical occupational opportunities are found in motor vehicle and equipment plants, air craft industry, construction companies, independent metal working repair shops, steel mills, and self-employment.

### WELDING — CURRICULUM BY QUARTERS

| | | | Class | Lab | Credit |
|---|---|---|---|---|---|
| **First Quarter** | | | | | |
| ENG | 1101 | Reading Improvement | 2 | 0 | 2 |
| BPR | 1104 | Blueprint Reading: Mechanical | 0 | 3 | 1 |
| MAT | 1101 | Fundamentals of Mathematics | 5 | 0 | 5 |
| MES | 1124 | Metallurgy | 2 | 1 | 3 |
| WLD | 1120 | Oxyacetylene Welding and Cutting | 3 | 12 | 7 |
| | | | 12 | 16 | 18 |
| **Second Quarter** | | | | | |
| ENG | 1102 | Communication Skills | 3 | 0 | 3 |
| BPR | 1117 | Blueprint Reading: Welding | 0 | 3 | 1 |
| MAT | 1103 | Geometry | 4 | 0 | 4 |
| ELC | 1118 | Applied Electricity | 3 | 2 | 4 |
| WLD | 1121 | Arc Welding | 3 | 12 | 7 |
| | | | 13 | 17 | 19 |
| **Third Quarter** | | | | | |
| PSY | 1101 | Human Relations | 3 | 0 | 3 |
| MES | 1112 | Machine Shop Processes | 0 | 5 | 2 |
| WLD | 1112 | Mechanical Testing and Inspection | 1 | 3 | 2 |
| WLD | 1122 | Commercial and Industrial Practices | 3 | 9 | 6 |
| WLD | 1123 | Inert Gas Welding | 1 | 3 | 2 |
| | | | 8 | 20 | 15 |
| **Fourth Quarter** | | | | | |
| BUS | 1103 | Small Business Operation | 3 | 0 | 3 |
| DFT | 1126 | Pattern Development and Sketching for Welding | 0 | 3 | 1 |
| WLD | 1124 | Pipe Welding | 3 | 12 | 7 |
| WLD | 1125 | Certification Practices | 3 | 6 | 5 |
| | | | 9 | 21 | 16 |

# COURSE DESCRIPTIONS INDEX

## Business Education Division



## Engineering Technology



## Hospitality



## Health Education



## Vocational-Industrial



## General Education

# Course Descriptions

## BUSINESS ADMINISTRATION

**BUS-101 Introduction To Business** **(3 - 2 - 4)**

A survey of the business world with particular attention devoted to the structure of the various types of business organizations, methods of financing, internal organization, and management. Prerequisite: None.

**BUS-110 Business Machines** **(1 - 4 - 3)**

A general survey of the business and office machines. Students will receive training in techniques, processes, operation and application of the ten-key adding machines, full keyboard adding machines, and calculator. Prerequisite: None.

**BUS-114 Business Law** **(5 - 0 - 5)**

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies. Prerequisite: None.

**BUS-115 Business Law** **(3 - 0 - 3)**

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies. The uniform commercial code is considered wherever applicable. Prerequisite: None.

**BUS-116 Business Law** **(3 - 0 - 3)**

Includes the study of laws pertaining to bailments; insurance; agency; employer and employee relations; business organization; real property; and workers benefits. Prerequisite: BUS 115.

**BUS-118 Secretarial Accounting** **(5 - 2 - 6)**

This course is an introduction to secretarial accounting. It covers the nature of business accounting, accounting procedure, accounting for cash, payrolls, merchandise, notes and interest and the accrual basis of accounting applied to a retail business. The periodic summary and adjusting and closing accounts at the end of the accounting period are covered. Prerequisite: MAT. 110.

**BUS-119 Secretarial Accounting** **(5 - 2 - 6)**

This is a continuation of the introduction to secretarial accounting. Accounting for inventory and prepaid expense, long term tangible assets are covered. The preparation of the annual report and interim financial statement are covered. Each area includes practical accounting problems. Prerequisite: BUS 118.

**BUS-120 Accounting** **(5 - 2 - 6)**

Principles, techniques and tools of accounting, for understanding of the mechanics of accounting. Collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, to include practical application of the principles learned. Prerequisite: MAT 110. or MAT 101 (DP)

**BUS-121 Accounting** **(5 - 2 - 6)**

Partnership and corporation accounting including a study of payrolls, federal and state taxes. Emphasis is placed on the recording, summarizing and interpreting data for management control rather than on bookkeeping skills. Accounting services are shown as they contribute to the recognition and solution of management problems. Prerequisite: BUS 120.

**BUS-122 Accounting** **(5 - 2 - 6)**

The student is given a thorough knowledge of concepts used in the preparation and interpretation of financial statements. Each item of the income statement and balance sheet is carefully analyzed prior to making a selection as to how these items will be utilized. Prerequisite: BUS 121.

**BUS-123 Finance** **(5 - 0 - 5)**

Stockmarket transactions and brokerage operations are used as a vehicle in presenting this course. Financing of business units includes individuals, partnerships, corporations, and trusts. Sources and uses of capital are covered. Prerequisite: BUS 101.

**BUS-124 Business Finance** **(3 - 2 - 4)**

Financing, federal, state, and local government and the ensuing effects upon the economy. Factors affecting supply of funds, monetary and credit policies. Prerequisite: BUS 123.

**BUS-219 Credit** **(5 - 0 - 5)**

Principles and practices in the extension of credit; collection procedures; laws pertaining to credit extension and collection are included. Prerequisite: BUS 120.

**BUS-225 Cost Accounting** **(5 - 0 - 5)**

Nature and purpose of cost accounting; accounting for direct labor, materials, and factory burden; job cost, and standard cost principles and procedures; selling and distribution cost; budgets, and executive use of cost figures. Prerequisite: BUS 121.

**BUS-229 Taxes** **(3 - 2 - 4)**

Application of federal and state taxes to various businesses and business conditions. A study of the following taxes: income, payroll, intangible, capital gain, sales and use, excise, and inheritance. Prerequisite: BUS 121. OR HMF 105

**BUS-232 Sales Development** **(5 - 0 - 5)**

A study of retail, wholesale and specialty selling. Emphasis is placed upon mastering and applying the fundamentals of selling. Preparation for and execution of sales demonstrations required. Prerequisite: BUS 239.

**BUS-233 Personnel Management and Supervision** **(5 - 0 - 5)**

This course presents the fundamental principles and successful practices in the organization and supervision of employees. A study of the critically important and practical concepts of modern day supervision is presented. Results of modern social-psychological research and case studies are employed to demonstrate and emphasize leadership and motivation in the job situation. Prerequisite: PSY 206.

**BUS-235—Business Organization & Management** **(3 - 2 - 4)**

Principles of business organization, administration and management covering management theory including planning, staffing, controlling, coordinating, directing, financing, and budgeting. An over view of developing and engineering the product, methods analysis and control, principles and administration of industrial relations and financing controls as interrelated functions of management are stressed. Prerequisite: BUS 101.

**BUS-239 Introduction to Marketing** **(5 - 0 - 5)**

A general survey of the field of marketing, with a detailed study of the function, policies, and institutions involved in the marketing process. Prerequisite: None.

**BUS-243 Advertising**

The role of advertising in a free economy and its place in the media of mass communications. A study of advertising appeals; product and market research; selection of media; means of testing effectiveness of advertising. Theory and practice of writing advertising copy for various media. Prerequisite: BUS 239.

**BUS-245 Wholesale & Retail** **(5 - 0 - 5)**

A study of the role of wholesaling and retailing in the economy with emphasis on retailing including development of present retail structure, functions performed, principles governing effective operation and managerial problems resulting from current economic and social trends. Prerequisite: BUS 239.

**BUS-247—Insurance** **(5 - 0 - 5)**

A presentation of the basic principles of risk insurance and their application. A survey of the various types of insurance is included. Prerequisite: BUS 116 or HMF 102.

**BUS-258 Machine Accounting** **(1 - 4 - 3)**

Designed to provide a reasonable skill in the use of office machines. Each student shall develop a fair degree of efficiency in the basic operations of each machine through the application of procedures learned to actual problem solving in the accounting field. Prerequisite: BUS 121.

**BUS-269 Auditing** **(4 - 2 - 5)**

Interpreting accounting data for managerial decisions. Stress is placed on the need for relevant, accurate records to ensure internal control. Procedures, standards and rules of auditing, and preparing, projection, and operation of business budgets are introduced. Prerequisite: BUS 225.

**BUS-270 Methods for Managerial Decisions** **(3 - 2 - 4)**

This course is designed to explain useful techniques, which have been developed to improve decision making in management. Value Analysis; Payoff Tables and Decision Trees; Critical Path Analysis — PERT; and Operations Research are introduced. Inter-relationships and coordination at all levels of management are emphasized. Prerequisite: BUS 101.

**BUS-272 Social Usage and Protocol** **(2 - 0 - 2)**

A presentation of social graces, social awareness, grooming, clothing and dress, business etiquette and telephone etiquette in business. Elective. Prerequisite: None.

**BUS-1103 Small Business Operations** **(3 - 0 - 3)**

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations. Prerequisite: None.

**ECO-102 Economics** **(3 - 0 - 3)**

The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, and consumption both in relation to the individual enterprise and to society at large. Prerequisite: None.

**ECO-104 Economics** **(3 - 0 - 3)**

Greater depth in principles of economics including a penetration into the composition and pricing of national output, distribution of income, international trade and finance, and current economic problems. Prerequisite: ECO 102.

**ECO-105 Economics** **(5 - 0 - 5)**

The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, consumption, composition and pricing of national output, distribution of income, international trade and finance, and current economic problems. Prerequisite: None

**ECO-106 Economics** **(3 - 0 - 3)**

Current labor problems and theories; the labor market; the development of labor unions; wage theories and the development of effective labor and wage policies. Prerequisite: ECO 104.

## INDUSTRIAL MANAGEMENT

**ISC-102 Industrial Safety** **(3 - 0 - 3)**

Problems of accidents and fire in industry. Management and supervisory responsibility for fire and accident prevention. Additional topics cover accident reports and the supervisor; good housekeeping and fire prevention; machine guarding and personnel protective equipment; state industrial accident code and fire regulations; the first aid department and the line of supervisory responsibility; job instruction and safety instruction; company rules and enforcement; use of safety committees; insurance carrier and the Insurance Rating Bureau; and advertising and promoting a good safety and fire prevention program. Prerequisite: None.

**ISC-202 Quality Control** **(3 - 2 - 4)**

Principles and techniques of quality control and cost saving. Organization and procedure for efficient quality control. Functions, responsibilities, structure, costs, reports, records, personnel and vendor-customer relationships in quality control. Sampling inspections, process control and tests for significance. Prerequisite: None.

**ISC-203 Time and Motion Study** **(3 - 2 - 4)**

Principles of motion economy, tools for motion study, time study methods and practice; standard data and formula construction; use of methods-time measurements as a substitute for time studies. Prerequisite: None.

**ISC-204 Value Analysis** **(3 - 0 - 3)**

The modern concept in the control of manufacturing production. This course will provide the students an opportunity to study a production system with the specific purpose of identifying unnecessary costs. The objective of the concepts and techniques of value analysis is to make possible a degree of effectiveness in **identifying** and **removing** unnecessary cost by the use of sound decisions through a common sense approach. Prerequisite: None.

**ISC-209 Plant Layout** **(3 - 2 - 4)**

A practical study of factory planning with emphasis on the most efficient arrangements of work areas to achieve lower manufacturing costs. Layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment. Effective management of men, money and material in a manufacturing operation. Prerequisites: Consent of Advisor.

**ISC-211 Work Measurement (Pre-Determined Time)** **(3 - 2 - 4)**

Principles of work simplification including administration of job methods improvement, motion study fundamentals and time study techniques. Use of flow and process charts; multiple activity charts, operation charts, flow diagrams and methods evaluation. Prerequisite: ISC 203.

**ISC-220 Management Problems (Wage and Salary Administration)** **(3 - 0 - 3)**

A study of the basic requirements of a sound wage and salary program. This study includes the techniques of job analysis and job evaluation, commonly used methods of employee rating, and the various wage incentive systems currently being used. Prerequisite: BUS 233.

**ISC-251 Labor Problems and Labor Law** **(3 - 2 - 4)**

A study of the current problems of industrial societies. Labor requirements for new plants and expanding industries. Training problems in industry and laws that regulate these programs. A study of state and federal laws that regulate various classes of labor. An overview of reports that are made to government agencies, and services rendered to industry from various government agencies. Prerequisite: ECO 104.

## DATA PROCESSING

**EDP-100 Introduction to Data Processing** **(3 - 2 - 4)**

Fundamental concepts and operational principles of data processing systems, along with an introduction to computer programming, are presented for non-data processing majors. The emphasis is on business applications for students from the School of Business Education and on mathematical and technical applications for students from the School of Engineering Technology. Prerequisite: None.

**EDP-101 Functional Wiring Principles** **(2 - 3 - 3)**

Basic principles of control panel wiring and operation of punched card equipment are emphasized in this course. Laboratory projects based on business applications give key punch, sorter, accounting machine, reproducer, and collator experience to the student. Prerequisite: None.

**EDP-102 Introduction to Computer Technology** **(2 - 3 - 3)**

Fundamental concepts of data processing and systems analysis including computers, data processing systems, input/output devices, and flowcharting are presented. Machine language is introduced by using the 1620 computer to perform basic computations. The programs emphasize programming techniques including branches, loops, and address modification. Corequisite: EDP 101.

**EDP-104 Business Programming (SPS)** **(2 - 3 - 3)**

The Symbolic Programming Systems (SPS) is the first assembler level language in which the students write programs. Various business applications, including a major payroll project, are flowcharted, programmed, processed on the 1620 computer, and debugged by the student. Prerequisite: EDP 102.

**EDP-105 Introduction to Scientific Programming (FORTRAN)** **(2 - 3 - 3)**

Formula Translation (FORTRAN) programming stresses the solution of practical problems of a mathematical nature from business and industry. The course includes programming in basic FORTRAN II, compiled and run on the 1620 computer. Prerequisite: EDP 102.

**EDP-107 Introduction to System/360 (OS)** **(3 - 2 - 4)**

This course provides specific information about the System/360 computer. The course shows how it computes, how it is programmed, and what makes up such a computer system. Disk operating system is also introduced in this course. Prerequisite: EDP 102.

**EDP-110 Business Programming (COBOL)** **(3 - 2 - 4)**

The Common Business Oriented Language (COBOL) is presented in detail. A variety of business and commercial applications are programmed and then tested. Prerequisite: EDP 107.

**EDP-111 Systems and Procedures (COBOL)** **(2 - 3 - 3)**

This course covers studies of typical COBOL systems and procedures now being used in commercial and industrial computer installations. The student is given information on feasibility studies, and organization of data for computer application. Major applications are followed up with programming projects performed by the student. Corequisite: EDP 110.

**EDP-201 Business Programming (RPG)** **(2 - 3 - 3)**

Report Program Generator (RPG) coding includes preparation of the spacing chart, file description, file extension, input, calculation, and output specifications. Business application programs are written. Prerequisite: EDP 102.

**EDP-202 Systems and Procedures (RPG)** **(2 - 3 - 3)**

This course gives the student additional explanation on systems and procedures as they may relate to the report program generator coding system on the System 360 model 20 computer. Corequisite: EDP 201.

**EDP-205 Scientific Programming (FORTRAN IV)** **(3 - 2 - 4)**

FORTRAN IV is introduced as an extension of the FORTRAN II course. Prerequisites: EDP 105, MAT 104, MAT 214.

**EDP-206 Systems and Procedures (FORTRAN IV)** **(2 - 3 - 3)**

Emphasis is on the solution of practical problems of a mathematical nature from business and industry. Corequisite: EDP 205.

**EDP-208 Business Programming (BAL)** **(3 - 2 - 4)**

The Basic Assembler Language (BAL) programming course includes details for writing programs to function under the Operating System (OS) of System/360. Specific information pertaining to OS is presented. Prerequisite: EDP 107.

**EDP-210 Business Programming (Adv. COBOL)** **(2 - 3 - 3)**

This course is an extension of basic COBOL. It allows needed time for understanding and writing more sophisticated programs under OS. Prerequisites: EDP 110, EDP 111.

**EDP-212 Systems Analysis and Design** **(2 - 3 - 3)**

In this course, the student is assigned to study an existing data processing system and make recommendations for improvement, or to design a new system. The work is in the nature of a programmer-analyst. The task will involve the flow of work from its point of origin to completion by the computer program including all forms design, full documentation and reports. Prerequisites: EDP 206, EDP 210.

**EDP-213 Job Control Language — System/360** **(3 - 2 - 4)**

Job Control Language consists of control cards used to direct the execution of computer programs, and to describe the input/output devices used. Design and coding of JCL statements can occupy a significant part of the programmer's time. Job control language permits the use of many features of the System/360. In this course, Job Control Language features are discussed, and examples of use are given to the student.

**EDP-215 System/3 and RPG II** **(3 - 2 - 4)**

System/3 introduces a new concept to the small computer field using a 90 column card coded with binary punching. Because of its wide use in smaller installations, this course is offered to introduce students to the System/3 computer and the RPG II language used by it. Prerequisite: EDP 201.

## SECRETARIAL SCIENCE

**SSC-101 Typewriting** **(2 - 3 - 3)**

Introduction to the touch typewriting system with emphasis on correct techniques, mastery of the keyboard, and accuracy. Prerequisite: None.

**SSC-102 Shorthand** **(3 - 2 - 4)**

A beginning course in the theory and practice of reading and writing shorthand. Gregg Diamond Jubilee Series. Prerequisite: None.

**SSC-103 Typewriting** **(2 - 3 - 3)**

Instruction emphasizes the development of speed and accuracy with further mastery of correct typewriting techniques. These skills and techniques are applied in tabulation, manuscript typewriting and correspondence. Prerequisite: SSC 101.

**SSC-104 Shorthand** **(3 - 2 - 4)**

Emphasis on dictation, speed building and elementary transcription techiniques. Prerequisite: SSC 102.

**SSC-105 Typewriting** **(2 - 3 - 3)**

Emphasis on production typing problems. Attention to the development of the student's ability to function as an expert typist, producing mailable copies. The production units are tabulation, manuscript, correspondence, and business forms. Prerequisite: BUS 103 or the equivalent. Speed requirement: 50 words per minute for five minutes.

**SSC-106 Shorthand** **(3 - 2 - 4)**

Speed building and elementary transcription. Emphasis on development of speed in dictation and accuracy in transcription. Prerequisite: SSC 104. Speed requirement: 80 words a minute for five minutes.

**SSC-108 Shorthand** **(3 - 2 - 4)**

Reinforcement of speed building powers in shorthand. Emphasis on theory review and transcription skill building. This course is designed only for those students who began their shorthand training in the fall quarter. Prerequisite: SSC 106.

**SSC-111 Office Machines and Machine Transcription** **(2 - 2 - 3)**

Instruction in the operation of the bookkeeping-accounting machine, duplicating machine and other office machines. Special emphasis is placed on dictating equipment and the proper use of these machines. Prerequisite: BUS 110.

**SSC-112 Filing** **(3 - 0 - 3)**

Fundamentals of indexing and filing, combining theory and practice by the use of miniature letters, filing kits and guides. Alphabetic, Triple Check, Automatic, Geographic, Subject, and Dewey Decimal are covered. Prerequisite: None.

**SSC-113 Personality Development for Secretaries** **(3 - 0 - 3)**

Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement. Prerequisite: None.

**SSC-127 Business English** **(3 - 0 - 3)**

A course designed specifically for secretarial students. Emphasis is placed upon punctuation skill building, spelling, and transcription of self-written shorthand notes at the typewriter. Prerequisite: ENG 101, SSC 101, SSC 102.

**SSC-205 Advanced Typewriting** **(2 - 3 - 3)**

Emphasis is placed on the development of individual production rates. The student learns the techniques needed in planning and in typing projects that closely approximate the work appropriate to the field of study. These projects include review of letter forms, methods of duplication, statistical tabulation, and the typing of reports, manuscripts and legal documents. Prerequisite: SSC 105. Speed requirement, 60 words per minute for five minutes.

**SSC-206 Dictation and Transcription** **(3 - 2 - 4)**

Develops the skill of taking dictation and of transcribing at the typewriter. Minimum speed requirement: 100 wpm for five minutes. Prerequisite: SSC 108.

**SSC-207 Secretarial Procedures I** **(3 - 2 - 4)**

Designed to acquaint the student with the responsibilities encountered by a secretary during her work day. These include the following: receptionist's duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, office organization, and insurance claims. Prerequisite: SSC 111, SSC 112, SSC 205, and SSC 206.

**SSC-208 Dictation and Transcription** **(3 - 2 - 4)**

Covering materials, appropriate to the course of study, the student develops accuracy, speed and a vocabulary that will enable her to meet the secretarial requirements of business and professional offices. Minimum dictation speed: 100 wpm for five minutes. Prerequisite: SSC 206.

**SSC-209 Secretarial Procedures II** **(3 - 2 - 4)**

A continuation of the work encountered in the first course. Emphasis is placed on the student's working on individual problems and specialized work projects. Prerequisite: SSC 207.

**SSC-210 Dictation and Transcription** **(3 - 4 - 5)**

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material. Prerequisite: SSC 208.

**SSC-211 Office Procedures** **(3 - 0 - 3)**

This course presents the fundamental principles of Office Procedures and Management. Emphasis will be placed on record management for efficiency and office automation. Planning and organizing will also be emphasized. Prerequisite: None.

**SSC-271 Office Management** **(3 - 0 - 3)**

A course designed for secretaries. Presents the fundamental principles of office management. Emphasis on the role of office management including its functions, office automation, planning, controlling, organizing and actuating office problems. Prerequisite: BUS 101.

## ENGINEERING TECHNOLOGY EDUCATION
## CHEMISTRY

**Chem-101 General Chemistry** **(2 - 3 - 4)**

This course involves a study of the physical and chemical properties of substances, chemical changes, elements, compounds, gases, chemical combinations, weights and measurements, theory of metals, acids, bases, salts, solvents, solutions, and emulsions. In addition, a study is made of carbohydrates, electro-chemistry, electrolytes and electrolysis in their application of chemistry to industry. Prerequisite: MAT 101.

**CHM-102 Basic Chemistry** **(2 - 3 - 3)**

Basic chemistry is introduced briefly to aid the student in understanding the organic and biological phases which follow. Emphasis is placed upon those areas of chemistry involved in normal and abnormal cell functions. Various chemicals of the body are studied as they relate to specific physiological processes. Mathematical computations are limited to those necessary to understand laboratory reports and develop a concept of the quantitative nature of chemistry.

**CHM-111 General Chemistry** **(3 - 4 - 5)**

This course involves a study of the physical and chemical properties of substances, chemical changes, elements, compounds, gases, chemical combinations, weights and measurements. A study is made of carbohydrates, electro-chemistry, electrolytes and electrolysis in their application of chemistry to industry. Corequisite: MAT 100.

**CHM-112 General Chemistry** **(3 - 4 - 5)**

An introductory chemistry course involving chemical terminology, atomic structure, properties of some elements, and the function of the periodic table. Properties of compounds and mixtures are studied as are types of chemical reactions. Laboratory work consists of various inorganic reactions and preparations. Prerequisite: CHM 111.

**CHM-113 General Chemistry** **(3 - 4 - 5)**

A study of the properties of elements not covered in CHM 112 and a study in greater depth of the combining properties of the elements including equivalent weights. Laboratory work includes chemical reactions and an investigation of properties of solutions. Prerequisite: CHM 112.

**CHM-121 Qualitative Analysis** **(3 - 6 - 5)**

Qualitative analysis is the branch of analytical chemistry which determines the presence or absence of elements, radicals, or ions in an unknown substance or mixture of substances. Students will be expected to analyze and study unknown substances to determine which ions are present. Analytical operations, the system of analysis, principles of qualitative analysis, analysis for anions, analysis for cations, analysis of alloys, salts, and commercial substances constitute major areas of study. Prerequiite: CHM 112.

**CHM-222 Quantitative Chemical Analysis** **(3 - 6 - 5)**

Emphasis is placed on developing laboratory techniques employed in the volumetric analysis of acids and bases. The students will become thoroughly familiar with the principles and procedures of neutralization titration. Classroom work will emphasize the stoichiometric calculations involved in interpreting the results of analysis. Laboratory work will consist of percentage analysis of selected substances. Prerequisite: CHM 121.

**CHM-223 Quantitative Chemical Analysis** **(2 - 9 - 5)**

The more complex types of quantitative analysis. Special emphasis on the theory of oxidation-reduction and gravimetric analysis. Instrumental analysis is introduced and use of modern analytical devices is stressed. The student will become familiar with the principles of redox reactions, ionization constants and pH of solutions. Stress is placed on the stoichiometric calculations of quantitative chemical analysis. Classroom work complements quantitative determinations in the laboratory. Prerequisite: CHM 222.

**CHM-231 Organic Chemistry** **(3 - 6 - 5)**

Nomenclature, structure, preparation, properties, and reactions of aliphatic organic compounds. Laboratory work emphasizes techniques. Prerequisite: CHM 222.

**CHM-232 Organic Chemistry** **(3 - 6 - 5)**

The Nomenclature, structure, preparation, properties, and reactions of aromatic organic compounds. Laboratory work emphasizes techniques and involves preparation and analysis of selected organic compounds. Prerequisite: CHM 231.

**CHM-241 Industrial Chemical Analysis** **(3 - 9 - 6)**

An industrial laboratory situation is simulated. Principles and techniques learned in previous quarters are utilized in solution of problems common to local industry. It will be the responsibility of the instructor to determine and submit in outline form a program of suitable scope and sequence of topics which he will work out from consultation with his local advisory committee, representing the industry. This program must be approved by the administration and accepted by the appropriate State-level authority. Prerequisites: CHM 223, CHM 231.

**CHM-242 Industrial Chemical Analysis** **(3 - 9 - 6)**

An industrial laboratory situation is maintained and the emphasis on instrumentation is expanded. Problems of industrial quality control. Plant visitations. Prerequisite: CHM 241.

**CHM-250 Physical Chemistry** **(3 - 2 - 4)**

Atomic theory, states of matter, chemical thermodynamics, molecular properties of solutions, equilibria, phase role, electrochemistry, kinetics, surface chemistry, and photochemistry constitute major areas of study. Prerequisite: CHM 241.

## CIVIL

**CIV-101 Surveying** **(2 - 6 - 4)**

Theory and practice of plane surveying, including taping, differential and profile leveling, cross sections, earthwork computations, transit, stadia and transit-tape surveys. Corequisite: MAT 100.

**CIV-102 Surveying** **(2 - 6 - 4)**

Triangulation of ordinary precision; use of plane table; calculation of areas of land; land surveying; topographic surveys and mapping. Prerequisite: CIV 101. Corequisite: MAT 102.

**CIV-103 Surveying** **(2 - 6 - 4)**

Route surveys by ground and aerial methods; simple, compound, reverse, parabolic and spiral curves; geometric design of highways; highway surveys and plans, including mass diagrams. Prerequisite: CIV 102. Corequisite: MAT 103.

**CIV-114 Statics** **(5 - 0 - 5)**

Forces, resultants, and types of force systems; moments, equilibrium of coplanar forces by analytical and graphic methods; stresses and reactions in simple structure; equilibrium of forces in space; static and kinetic friction; center of gravity, centroids, and moment of inertia. Corequisite: MAT 102.

**CIV-201 Properties of Engineering Materials** **(2 - 3 - 3)**

Study and testing of the properties of ferrous and nonferrous metals, timber, stone, clay products, bituminous cementing materials; load and strain measurements; behavior of materials under load; qualities other than strength; control of the properties of the materials; non-destructive tests. Corequisite: PHY 101.

**CIV-202 Properties of Soils** **(2 - 3 - 3)**

Study of soil types and their physical properties; mechanical analysis and tests of soils; techniques and subsurface investigation; earth pressure theories; bearing capacity; stability of slopes; hydrostatics of ground water; methods of compaction and consolidation. Prerequisite: CIV 216.

**CIV-204 Surveying** **(2 - 6 - 4)**

Aerial photogrammetry; applications of aerial surveys; building and road construction surveying; lines and grades for foundation layout, building construction, bridge layout, sewer and pipe line surveys, further study and application of advanced surveying techniques and instruments. Prerequisite: CIV 103.

**CIV-216 Strength of Materials** **(3 - 2 - 4)**

Fundamental stress and strain relationship; torsion; shear and bending moments; stresses and deflections in beams; introduction to statically indeterminate beams; columns; combined stresses. Prerequisite: CIV 114. Corequisite: MAT 103.

**CIV-217 Construction Methods and Equipment** **(3 - 2 - 4)**

Excavating methods and equipment used in building and highway construction; pile driving; construction techniques and equipment used in reinforced concrete buildings, bridges, lift-slaps, thin-shells and folded plates, erection methods and equipment of structural steel buildings and bridges; carpentry in house and heavy timber construction; construction safety. Field inspection trips.

**CIV-218 Plain and Reinforced Concrete** **(4 - 4 - 6)**

Study and testing of the composition and properties of concrete including cementing agents, aggregates, admixtures, and air-entrainment; design and proportioning of concrete mixes to obtain pre-determined strengths and properties; methods of placing and curing concrete; standard control tests of concrete. Analysis and design of reinforced concrete beams, floor systems and columns. Use of CRSI Handbook. Principles of prestressed and precast concrete. Prerequisites: CIV 201, CIV 216.

**CIV-219 Steel and Timber Construction** **(3 - 2 - 4)**

Analysis and basic design of steel beams, tension members, columns, and riveted, high strength bolted, welded connections; study of plate girders, industrial building roofs and vents, continuous spans, lightweight steel construction; use of American Institute of Steel Construction Manual; introduction to rigid frames and plastic design in steel. Design of timber members and their connections. Field inspection trips. Prerequisite: CIV 216. Corequisite: CIV 225.

**CIV-220 Construction Planning** **(2 - 3 - 3)**

Analysis of construction plant layout requirements and contractor's organization for building and highway projects. Construction scheduling; project control and supervision; coordinating trades on building construction. Operations, charts, and practical application of Critical Path Method (CPM) for construction planning, scheduling, and "time-cost" determination. Prerequisite: CIV 217.

**CIV-225 Estimates, Codes and Specifications** **(3 - 6 - 5)**

Interpretation of working drawings of timber, steel, and reinforced concrete structures and highways; bidding procedures from preliminary survey to final bid; study of the North Carolina Building Code; practical costs and estimates problems; specifications.

**CIV-227 Construction of Highways** **(3 - 2 - 4)**

Construction practices for road building, including soil properties, grading, base, subbase, drainage, cuts and fills. Design of intersections, study of traffic flow and surveys, timespace diagrams. Organizational structure of the national highway system. Field trips. Prerequisites: CIV 202, CIV 103.

**CIV-228 Engineering Relations and Ethics** **(2 - 0 - 2)**

Study of the Engineers' Codes. Brief coverage of other fields of engineering technology. Ethical relations with employer, employees, clients, other technicians. Class discussions of situations involving engineering law and ethics. Prerequisite: Senior status.

**CIV-229 Branches of Civil Engineering Technology** **(3 - 0 - 3)**

Study of hydraulics, dam design, traffic engineering, hydrology, water systems design and layout, sewage treatment. Field trips. Prerequisite: Senior status.

## TECHNICAL DRAFTING

**DFT-101 Drafting** **(1 - 5 - 3)**

Use of instruments, geometric constructions, lettering, theory of projection, basic two and three view drawings, basic pictorial drawings, Reproduction process. Prerequisite: None.

**DFT-102 Drafting** **(1 - 5 - 3)**

Auxiliary views, sections, dimensions, shop notes, details, basic developments, fasteners, simple assemblies. Prerequisite: DFT 101.

**DFT-103 Drafting** **(1 - 5 - 3)**

Complex assemblies, oblique, isometric and perspective drawings, exploded assemblies. Prerequisite: DFT 102.

**DFT-104 Civil Drafting** **(0 - 6 - 2)**

Plats as required by law drawn in pencil and ink. Highway construction layouts and profiles, steel and wood structural drawings, topographical mapping and symbols. Prerequisite: DFT 101.

**DFT-106 Graphic Analysis** **(0 - 6 - 2)**

Methods of rectangular, semi-log and full-log charting, polar, trilinear and bar charts, flow and pictorial diagrams, nomography, strata and conversion charts, graphical calculus. Prerequisite: DFT 101.

**DFT-201 Design Drafting** **(2 - 6 - 4)**

Structural steel layout and detailing, application of structural shapes, fasteners, weldments and symbols, fluid-distribution system layout and selection of pipe fittings. Piping and wiring diagrams. Charts and graphs. Use of catalog and manuals. Prerequisite: DFT 103.

**DFT-204 Descriptive Geometry** **(2 - 6 - 4)**

Points, edges, lines, planes, curved lines, curved surfaces, irregular surfaces, intersections, developments, auxiliary projections, revolutions, vectors, and practical design applications. Prerequisite: DFT 102.

**DFT-205 Design Drafting** **(2 - 6 - 4)**

Design layout and details of belt and pulley drives, chain and sprocket drives, gear tooth profiles, gear train drives and details, cam layout and displacement diagrams. Prerequisite: DFT 103.

**DFT-206 Design Drafting** **(2 - 6 - 4)**

Research to solve a problem in design by consulting various manuals, periodicals, and through laboratory experiments. Preliminary design sketches, layout drawings, detail drawings, assembly and sub-assembly drawings, patent drawings and specifications are introduced. Prerequisite: DFT 205.

**DFT-211 Mechanisms and Kinematics Design** **(2 - 6 - 4)**

Alternate position displacement drawing, kinematic displacement, centros, velocities, accelerations, advanced cam layout and applications, displacements, timing and motion diagrams. Prerequisites: DFT 204, DFT 205, PHY 102.

**DFT-212 Jig and Fixture Design** **(2 - 6 - 4)**

Industrial standards, principles, practices and tools of jig and fixture design. Individual project and design work to acquaint students with the types of jigs and fixtures and their design. Prerequisite: DFT 205.

**DFT-242 Architectural Drafting** **(2 - 6 - 4)**

Complete set of working drawings, plot plan, floor plan, elevations, wall sections, details, electrical plan, plumbing, foundation, dimensioning practice, symbols and materials schedule. Prerequisite: DFT 103.

## TRADE DRAFTING

**BPR-1101 Blueprint Reading: Power Mechanics** **(0 - 3 - 1)**

Interpretation and reading of blueprints. Development of ability to read and interpret blueprints, charts, instruction and service manuals, and wiring diagrams. Information on the basic principles of lines, views, dimensioning procedures, and notes. Prerequisite: None.

**BPR-1104 Blueprint Reading: Mechanical** **(0 - 3 - 1)**

Interpretation and reading the blueprints. Information on the basic principles of the blueprint; lines, views, dimensioning procedures and notes. Prerequisite: None.

**BPR-1105 Blueprint Reading: Mechanical** **(0 - 3 - 1)**

Further practice of interpreation of blueprints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes. Prerequisite: BPR 1104.

**BPR-1106 Blueprint Reading: Mechanical** **(0 - 3 - 1)**

Advanced blueprint reading and sketching as related to detail and assembly drawings used in machine shops. The interpretation of drawings of complex parts and mechanisms for features of fabrication, construction and assembly. Prerequisite: BPR 1105.

**BPR-1107 Blueprint Reading for Construction Trades** **(0 - 3 - 1)**

How to read pictorial and orthographic drawings. Reading elevations, floor plans, symbols, notes, scales, construction types, interior and exterior details. Prerequisite: None.

**BPR-1109 Blueprint Reading for Construction Trades** **(0 - 3 - 1)**

Advanced reading of design variations, construction materials, practices, planning, specifications and steel structures. Prerequisite: BPR 1107.

**BPR-1116 Blueprint Reading for Air Conditioning** **(1 - 3 - 2)**

Reading of working prints, exploded drawings, wiring schematics, equipment layouts, shop sketches, building codes, heat systems, standards and symbols. Prerequisite: BPR 1104.

**BPR-1117 Blueprint Reading: Welding** **(0 - 3 - 1)**

A thorough study of trade drawings in which welding procedures are indicated. Interpretation, use and application of welding symbols, abbreviations, and specifications. Prerequisite: BPR 1104.

**DFT-1126 Pattern Development and Layout** **(0 - 3 - 1)**

A study of methods used in layout of sheet steel. Special emphasis is placed on developing pipe and angle layouts by the use of patterns and templates. Prerequisite: BPR 1104.

**DFT-1127 General Drafting-Construction Trades (2 - 3 - 3)**

Basic skills and techniques of drawing with instruments. Principal views and standard practices of dimensioning are included. Sections and elevations are presented. Prerequisite: BPR 1109.

**DFT-1207 General Machine Drafting (0 - 6 - 2)**

Use of instruments, lettering, scales, geometric constructions, applied geometry, orthographic projections, pictorial sketching, plate cam layout, displacement, timing, and motion diagrams. Prerequisite: None.

**BPR-1208 Blueprint Reading: Tool and Die (2 - 3 - 3)**

A complete and thorough knowledge of tool and die prints will be required. Industrial prints will be used in this course. The difference between production drawings or operation sheets and tools drawing will be presented. Assembly drawings as the piece fits into place will be broken down into each detail print required. Prerequisite: DFT 1207.

## ELECTRONICS

**ELN-101 Fundamentals of D-C (4 - 6 - 6)**

Principles of direct current electricity including: basic electron physics; electrical units of measure; Ohm's law; series, parallel, and series-parallel resistive networks; Kirchoff's laws; basic measuring instruments; electrostatics; capacitors; R-C time constants; magnetics; inductance; L-R time constants. Laboratory experiments provide proof of the important concepts developed. Prerequisite: None.

**ELN-102 Fundamentals of A-C (4 - 6 - 6)**

Principles of alternating current electricity including: sine wave analysis; resistive, capacitive, and inductive networks; phasor relations in complex circuits; non-resonant and resonant series and parallel L-C-R circuits; inductive coupling; air and iron core transformer analysis. Important theoretical concepts are substantiated by laboratory experiments. Prerequisite: ELN 101.

**ELN-103 Network Analysis (4 - 6 - 6)**

Application of the Network Theorems to problem solution. Kirchoff's Voltage and Current Laws, the Superposition Theorem, Thevenin's Theorem, Norton's Theorem and Miller's Theorem are applied to different circuit configurations in order to develop skills necessary to analyze circuit performance mathematically. Emphasis is concentrated on facilitating circuit solution by replacing complex networks with simple equivalent circuits. Prerequisite: ELN 102.

**ELN-105 Vacuum Tubes, Theory and Application (4 - 6 - 6)**

An introductory study of the vacuum tube as an active circuit element with both graphical and linear analysis of the device and circuits. A basic examination of the linear amplifier is combined with some applications in feedback and oscillators. Prerequisite: ELN 102.

**ELN-205 Introduction to Solid State Devices (4 - 6 - 6)**

A brief introduction to semiconductor theory, followed by a D-C analysis of the PN junction, semiconductor diodes (conventional and Zener) and bipolar transistors. Graphical analysis is employed for introductory purposes but course emphasis is directed toward circuit solution utilizing hybrid parameters. Transistor biasing is considered in conjunction with device limits and thermal effects. Prerequisite: ELN 103.

**ELN-206 Circuit Analysis (4 - 4 - 6)**

A study of special purpose amplifiers and related components. Cascade amplifiers are studied from their non-ideal aspects. Operational amplifiers are studied as analog devices capable of performing mathematical operations. Input and output level and impedance matching of amplifiers is considered as well as additional related topics such as differential amplifiers and a further study of oscillators. Prerequisite: ELN 210.

**ELN-210 Transistor Amplifier Analysis** **(4 - 6 - 6)**

Further development of the semiconductor studies of ELN 205. Alternating current circuit concepts are introduced. The transistor is studied as an amplifier in the common emitter, common collector and common base configurations. The push-pull amplifier is introduced. Field effect transistors are included as a separate study. Prerequisite: ELN 205.

**ELN-214 Logic Circuits** **(4 - 4 - 6)**

An introduction to solid state logic circuits. Topics of study are — OR gates, AND gates, inverters, inhibit operations, EXCLUSIVE OR gates, AND gates, NOR gates, binary addition and subtraction with logic circuit elements, registers encoding, decoding, and finally combining the circuits studied in suitable configurations to perform logic operations. Prerequisite:: ELN 210.

**ELN-215 Waveshaping and Pulse Circuits** **(4 - 4 - 6)**

A course continuing studies initiated in ELN 214 and introducing additional topics. Logic circuits study is extended to include bistable multivibrator, monostable multivibrator, astable multivibrator and Schmitt trigger. Differentiators, integrators, ramp generators and related topics are included as well as additional studies of device limitations as applied to switching circuits. Prerequisite: ELN 214.

**ELN-216 Fundamentals of Transmission** **(3 - 2 - 4)**

An introduction to transmission media and interfacing equipment, both audio frequency and radio frequency. Topics of study include propagation velocity, attenuation constants, phase constants, characteristic impedance, impedance matching, standing waves, reflected waves, attenuators, balanced and unbalanced lines, modulation and detection. Laboratory experiments reinforce classroom study. Prerequisite: ELN 215.

**ELN-221 Electronic Circuit Design** **(1 - 6 - 4)**

A research project for the advanced student to provide a realistic and creative application of his fundamental electronic knowledge to a demonstrateable system of his own design. A further objective in cooperation with the English department is to provide further experience in preparing meaningful technical reports. Prerequisite: ELN 210.

**ELN-233 Introduction to Special Devices** **(4 - 4 - 6)**

A study encompassing semiconductor devices with negative resistance characteristics or other special properties. Devices studied include unijunction transistors, four layer diodes (SCR, SCS, TRIAC, etc.), tunnel diodes, Shockley diodes and others. Prerequisite: ELN 210.

**ELN-235 Industrial Instrumentation** **(3 - 2 - 4)**

An investigation into sensing devices, information processing and discrimination, recorders, and output devices. These elements are considered in analog and digital applications to industrial control and automation systems. Prerequisite: ELN 214.

## MECHANICAL TECHNOLOGY

**MEC-101 Machine Processes** **(0 - 6 - 2)**

An introductory course designed to acquaint the student with basic hand tools, safety procedures and machine processes of our modern industry. It will include a study of measuring instruments, characteristics of metals and cutting tools. The student will become familiar with the lathe family of machine tools by performing selected operations such as turning, facing, threading, drilling, boring, and reaming. Prerequisite: None.

**MEC-102 Machine Processes** **(0 - 6 - 2)**

Advanced operations on lathe, drilling, boring and reaming machines. Milling machine theory and practice. Thorough study of the types of milling machines, cutters, jig and fixture devices, and the accessories used in a modern industrial plant. Safety in the operational shop is stressed. Prerequisite: MEC 101.

**MEC-105 Statics** **(5 - 0 - 5)**

Concepts and basic principles of statics. Parallel concurrent, and noncurrent force systems in coplanar and noncoplanar situations. Concepts of friction. Prerequisites: MAT 102, PHY 102.

**MEC-106 Applied Mechanics** **(5 - 0 - 5)**

Concepts and principles of statics and dynamics. Parallel concurrent and nonconcurrent force systems in coplanar and noncoplanar situations. Concepts of centroids and center of gravity, moments of inertia, fundamentals of kinetics, and kinematics of velocity and motion. Prerequisites: MAT 102, PHY 101.

**MEC-111 Manufacturing Processes** **(3 - 3 - 4)**

A survey of manufacturing processes, machines, and materials with regard to their capabilities, capacities, tolerances, finishes, etc. Product design, materials utilized, engineering nomenclature, and common terminology will be discussed. Laboratory to include field trips to various manufacturing industries, demonstration of machine operations, and experience in operating machines. Prerequisite: None.

**MEC-112 Manufacturing Processes** **(3 - 3 - 4)**

Process planning of operation sequences for efficient production, tool planning, and estimating. An introduction to characteristics of engineering materials. Prerequisite: MEC 111.

EC 116 ENGINEERING MATERIALS

**MEC-205 Strength of Materials** **(5 - 0 - 5)**

Study of principles and analyze stresses which occur within machine and structure elements subjected to various types of loads such as static, impact, varying and dynamic. Analyses of these stresses are made as applied to thin-walled cylinders and spheres, riveted and welded joints, beams, columns and machine components. Prerequisites: MEC 105, MAT 102.

**MEC-206 Dynamics** **(3 - 0 - 3)**

Study of motion as it affects mechanical components. Position, velocity, acceleration, and equations of motion for bodies. Function and design of mechanisms, cams, etc. Prerequisite: MEC 105, MAT 201, MEC 205.

**MEC-208 Machine Design** **(4 - 0 - 4)**

A survey course with the selection of components in mechanical design, such as power trains, gearing, bearings, shafts, keys, springs, belts, couplings, clutches, brakes, etc., through the use of manufacturers catalogs, standards, handbooks, etc. Prerequisite: MEC 205.

**MEC-209 Machine Design** **(4 - 0 - 4)**

Study of factors affecting the design of machine elements. Empirical and theoretical equations, practical considerations, and procedures of designing are included. Student given practice in applying knowledge of strength and properties of materials, manufacturing processes, economics of production, safety, and elements of good design through problem assignments. Prerequisite: MEC 208.

**MEC-210 Physical Metallurgy** **(3 - 3 - 4)**

Introductory course in metallurgy, a basic study of the properties of metals and alloys. Analysis of the structure of metals and alloys. Atomic structure, and its effect on physical properties. Solid (crystalline) structures, methods, methods of designating crystal planes; liquid and vapor phases; phase diagrams; and alloy systems. Prerequisite: PHY 101, MAT 102.

**MEC-212 Practical Automation** **(3 - 2 - 4)**

A comprehensive study of automation as it is interpreted and practiced by American industry of today. The fundamentals of automation and its effects in industrial productivity, labor and demand, equipment and processes. Students will solve problems encountered with installing an automated system. Prerequisite: None.

**MEC-214 Tool Engineering** **(3 - 0 - 3)**

An introduction to the problems of tool engineering with emphasis on planning the processes of production, designing and developing the necessary tools, and utilizing available manufacturing facilities; practical analysis and comparison of the use and costs of tools, jigs and fixtures, dies, molds, and gauges as they are utilized in our modern day manufacturing and production methods. Prerequisite: DFT 102.

**MEC-215 Advanced Strength of Materials** **(3 - 0 - 3)**

Precise design of machine components. Provides mathematically complete design methods for machine frame members, support systems, rotating or translating components. Covers indeterminate members and eccentrically loaded machine members. Prerequisites: MAT 103, MEC 205.

**MEC-216 Advanced Dynamics** **(3 - 0 - 3)**

Dynamics of a particle, dynamics of systems of particles and rigid bodies in plane motion. Application of these analytical methods to machine components will be emphasized. General motion of rigid bodies particularly gyroscopic action as it applies to machine control equipment will be introduced. Prerequisite: MEC 206.

**MEC-220 Power Systems** **(3 - 0 - 3)**

Survey of energy conversion systems such as the internal combustion engine, power plant, gas turbine, and refrigerator. Basic thermodynamic principles and laws introduced. Prerequisite: PHY 102, MAT 103.

**MEC-222 Advanced Power Systems** **(3 - 0 - 3)**

Thermodynamic principles reviewed and expanded. Theory is applied to evaluation of advanced thermodynamic engines, such as multistage turbines, turbine refrigeration, Stirling engines, Wankel or other rotary engines, free piston engines and compressors. Thermoelectric and thermionic power sources will be introduced. Prerequisites: MAT 103, MEC 220.

**MEC-235 Hydraulics and Pneumatics** **(3 - 3 - 4)**

The basic theories of hydraulic and pneumatic systems. Combinations of systems in various circuits. Basic designs and functions of circuits and motors, controls, electrohydraulic servomechanisms, plumbing, filtration, accumulators and reservoirs. Prerequisite: PHY 102.

**MEC-236 Advanced Hydraulics-Flow Systems** **(3 - 0 - 3)**

Flow of fluids through valves, fittings and pipe is evaluated. The basic procedures common to design of chemical pilot plants, special plumbing systems, pilot refineries and pipeline networks will be emphasized. Methods applicable to design of engine fuel systems, gas ducting and exhaust systems are included. Prerequisite: MAT 103, MEC 235.

**MEC-237 Advanced Hydraulic Controls—Fluidics (3 - 2 - 4)**

Introduction to theory and application of basic fluidic mechanisms and their use in fluidic computers and control systems. Principles and design of oscillators, amplifiers, and/or devices, pulse controls or pulse shapers, turbulence amplifiers will be provided. The use of these devices in simple and feedback controls will be evaluated. Prerequisite: MAT 201.

**MEC-1001 Elementary Hydraulic Principles (3 - 2 - 4)**

Students will be introduced to the principles of hydraulic systems as they apply in the heavy equipment area. The theory of hydraulic systems must be understood thoroughly before the students can progress into actual work on hydraulic systems. Various aspects of heavy equipment will be used to demonstrate these principles and theories. Prerequisite: None.

## CULINARY TECHNOLOGY

**CSP-101 Food Prep. I (4 - 8 - 7)**

To instruct the student in the basic principles of fine cuisine as it is practiced in the finest hotels and restaurants in the country with emphasis on sanitation, maintenance, layout, duties of the various stations in the kitchen, vegetable preparation, simple salads, the various methods of cooking and a basic introduction to cold sauces. Students will participate under actual working conditions.

**CSP-103 Food Prep. II (3 - 12 - 7)**

This course offers training in the art of making basic stocks and soups and basic sauces as practiced in the better hotels and restaurants today. In addition, application of production will be included. Emphasis is placed on participation by the student under actual kitchen conditions. Prerequisite: Food Prep. 101.

**CSP-105 Baking I (1 - 3 - 2)**

To introduce the students to the art of baking as done in fine restaurants and hotels. Emphasis will be placed on equipment, sanitation, layout of pastry shops, detailed technical information of the basic raw ingredients used in bread and cake making. Instruction will also cover production procedures, service weights, and measures.

**CSP-106 Food Preparation III (3 - 12 - 7)**

This course will train the student to prepare fish, meats and poultry dishes with their respective sauce. Fine cuisine is detailed with quantity food preparation and production stressed. Prerequisite: Food Preparation 103.

**CSP-108 Menu Planning - Nutrition (1 - 4 - 3)**

This course will demonstrate a study of composing a menu. It will reflect the seasonal changes necessary in menu planning, the essential human food requirements, and the types of food that produce these requirements. French terms will also be used where applicable in composing the menu. The various types of menus, a - la carte versus table d'hote will be prepared and discussed.

**CSP-110 Supervised Work Experience (3 - 36 - 15)**

**CSP-112 Baking II (1 - 3 - 2)**

This course will teach the student the skill and confidence in practical shop work. Conditions simulating actual working conditions as those found in hotels and restaurants. It will also give the students a fundamental knowledge of the usage of goods related to the baking industry. Practical assignments will be given for quantity production. Prerequisite: CSP 105.

**CSP-113 Baking III** **(1 - 3 - 2)**

This course will introduce more detailed assignments in practical shop work to achieve increased skills. Quantity production will also be prepared. Lectures and demonstrations of the finished product will be tested by the instructor. Prerequisite: CSP 112.

**CSP-201 Food Preparation IV** **(3 - 12 - 7)**

To put into practical use all of the theory and practice of food preparation I, II, III. The students are given rotating assignments at the various kitchen stations and they are graded on their performance and their ability to adapt to changing jobs. Emphasis is on the preparation of a complete luncheon menu for the dining hall and/or the dining room. It will be prepared in the finest tradition. Prerequisite: CSP 106.

**CSP-203 Dining Room I** **(1 - 2 - 2)**

To introduce the student with basic dining room routines, basic menu terminology, various stations of the dining room; fine points of service as they are practiced in leading dining rooms will be taught. Merchandising of the menu is also emphasized.

**CSP-207 Food Preparation V - Buffet Catering** **(3 - 12 - 7)**

To master the art of buffet preparation. This is to include the presentation and preparation of a hot and cold buffet, the art of decorating hors d'oeuvres and ice carving. Practical emphasis will be given as a regular production feature. Prerequisite: CSP 201.

**CSP-208 Convenience Foods** **(2 - 0 - 2)**

This course is designed to show the students the potentials of convenience foods and how to use them. Programming convenience foods into the menu will be discussed. Demonstration will be emphasized to show both specialized equipments and techniques.

**CSP-210 Food Preparation VI** **(3 - 12 - 7)**

This course is a continuance of Food Preparation IV and V. Planning the menu, the type of meal will be left to the discretion of the class. The instructor will stand by at all times for grading, motivating, and guiding the students. Prerequisites: CSP 101, 103, 106, 108, 201.

**CSP-214 Dining Room II** **(1 - 3 - 2)**

To have the students practice the proper techniques of service in the dining room, courtesy to guests is stressed as well as attractiveness of plate presentation. Kitchen - dining room flow of service will also be stressed. Classifications, vintages of wines will also be discussed. Prerequisite: 203.

## HOTEL AND RESTAURANT MANAGEMENT

**HMF-101 Hospitality Orientation** **(3 - 0 - 3)**

Traces the growth and development of the Hospitality Industry from early inns to modern day food and lodging complexes that have become an integral part of our society. This course offers the student an overview of the Hospitality Industry; its size and scope; nature and scope of the market it serves; types of establishments it includes; how hotels, motels and restaurants are organized; purposes and functions of each department within the Hospitality operation. Emphasis will be placed on giving the student an insight into the problems in the Hospitality Industry and the importance of sound relationship with both the public and other operations within the industry. Prerequisites: None.

**HMF-102 Business Law** **(3 - 0 - 3)**

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies. Prerequisite: None.

**HMF-104 Food Purchasing I** **(2 - 2 - 3)**

To indicate the functions and administrative operation of the food buyer's department in hotels and restaurants. Methods and procedures for purchasing food will be instructed to the students in order for them to place actual orders required for the preparation of a given meal. Markets, comparative price buying, yields and quality control will also be discussed. Standard specifications will be established. Storing, issuing and receiving controls will also be discussed. Prerequisite: None.

**HMF-105 Hotel Accounting** **(5 - 2 - 6)**

This course will present a study of all forms and procedures required in accounting systems in motels and hotels. Accounting for cash receipts, expenditures and deposits will be required. Practical application of hotel-motel accounting principles and techniques will be carried out in the Institute's own motel and office comlex. Prerequisite: HMF 107.

**HMF-107 Basic Hotel Accounting** **(5 - 2 - 6)**

Principles, techniques, and tools of accounting, collecting, summarizing, analyzing, and reporting information about service enterprises. Prerequisite: MAT 110.

**HMF-108 Food Cost Control** **(3 - 0 - 3)**

To instruct the students in food cost accounting techniques as related to purchasing, receiving, storing, issuing, production and revenue controls. Inventories perpetual and physical, will be taken periodically. Menu and portion costing will be maintained for every meal served. Food costs percentages and cost control records will be kept and their applications will be maintained. Forecasting and sales histories will be discussed.

**HMF-109 Food Purchasing II** **(2 - 2 - 3)**

Receiving and issuing techniques, storeroom operation, requisitioning, and record keeping will be assigned by the instructor. Grades versus prices regarding the types of preparation will be stressed. Meat cuts will also be discussed and demonstrated.

**HMF-110 Supervised Work Experience** **(0 - 30 - 15)**

This course is a planned work experience in a typical hospitality complex. This course will have supervision of the employer and Institute personnel. The purpose of this course is to give students actual experience in the field under typical requirements.

**HMF-205 Front Office Procedures** **(2 - 4 - 4)**

This course will present a study of the various aspects of the front office of the hotel and motel. This will include the procedures in registration, night auditing transcript preparation, daily reports, and accounting for all guests on the premises. A study of all office machines used in the field will be presented as well as standard check-in and check-out procedures and telephone requirements, reservations and room service will be presented. A great deal of emphasis will be placed upon the crucial human and public relations responsibilities of the front office staff. Practical application of all principles will be provided for in the Institute's own luxury motel complex. Prerequisite: HMF 105.

**HMF-206 Business Management in Hotels-Motels and Restaurants** **(3 - 2 - 4)**

This course will tie together into a cohesive pattern all the knowledge gained in the first year curriculum as well as introducing a wealth of new material in the areas of capital sources, forms of ownership, public relations, promotion, pricing and insurance protection. The student will be made aware of the importance of keeping abreast of changing regulations in the areas of food, lodging, wages, taxation, shifts in consumption level, population and costs, relocation of business areas and changes in competition. In addition, the student will be trained in the preparation and use of revenue and expense estimates and the profit and loss statement as an index to management effectiveness. Prerequisite: First year curriculum.

**HMF-207 Laws of Innkeeping** **(5 - 0 - 5)**

Presents a highly technical subject in non-technical language. The course is designed to help the student understand the attitudes of the courts when an innkeeper is involved in litigation, and to create an awareness of the many responsibilities which the law imposes upon the innkeeper. The emphasis in this course is upon the reason for the rules of law and the values or interests involved. The object is to give the student an understanding and a sense of balance rather than a series of specialized rules to memorize. Prerequisite: HMF 102.

**HMF-208 Supervisory Housekeeping** **(3 - 4 - 5)**

Provides the student with a basic foundation in the principles of hotel-motel housekeeping. The course will provide thorough training in planning and implementing objectives, staffing and scheduling, work methods and improvements, cleaning supplies, maintenance equipment and procedures, layout and safety. Practical application of all principles will be provided for in the Institute's own luxury motel complex. Prerequisite: None.

**HMF-209 Personnel Management in the Hospitality Industry** **(3 - 0 - 3)**

Gives to the student an acute awareness of the problems in an industry which offers service to the public performed by many employees; the problems of labor supply, selection, training, promotion, and morale. This course is really a compilation of the principles and practices already found to be of great value in hotels, motels and restaurants in the management of employees. Emphasis is placed upon the general principles which may be applied in any size operation, from department heads to general manager of a large hotel. The needs and purposes of the employer, the welfare and desires of the employees and the interests and demands of the community will be taken into account as they influence employer-employee relations. Prerequisite: First Year Curriculum.

**HMF-211 Food Service Management** **(2 - 6 - 4)**

This course is a comprehensive, practical study which is designed to require the student to project and combine his technical knowledge and managerial skills into an actual production situation over which he has complete authority and responsibility. Prerequisite: First Year Curriculum.

**HMF-212 Sales Promotion and Advertising in Hotels, Motels and Restaurants** **(2 - 2 - 3)**

This course is designed to present a study of the advertising media used by hotels, motels and restaurants. Methods and practices used to establish a favorable image and gaining public recognition will be presented. The civic responsibilities of the Hospitality Industry and social activities, such as conventions and special functions will be considered. Promotional projects used to advertise services will be carried out. Prerequisite: First Year Curriculum.

**HMF-214 Engineering and Layout in Hotels, Motels and Restaurants** **(2 - 4 - 4)**

This course is two-fold: first it will present a study of the various types of systems used in heating, ventilation, air conditioning and refrigeration in hotels, motels and restaurants. Special consideration will be given to traffic flow, and general building repair. This course will also outline procedures for planned preventative maintenance. In addition, a portion of the course will be devoted to design and layout of equipment and furnishings in the Hospitality Industry. Equipment changes, new products and processes, current labor conditions, competition, quality and cost control will be studied in relation to the planning of food and/or lodging facilities. Prerequisite: First Year Curriculum.

**HMF-215 Beverage Cost Controls** **(3 - 3 - 4)**

Offers a systematic study of the principles of effective beverage cost controls. This covers the entire beverage operation from purchasing, re-

ceiving and storage, the preparation, service, and most important, sales and inventory accountability. Particular emphasis will be placed upon calculating beverage costs and establishing standards of preparation and service. The course will concisely sum up the knowledge and principles of beverage cost controls that have taken operators years to learn by practical experience. In order to demonstrate how the principles are applied in a practical situation, a complete beverage department and cost accounting system has been created. Prerequisite: First Year Curriculum.

## ASSOCIATE DEGREE NURSING

**NUR-101 Fundamentals of Nursing I** **(4 - 3 - 5)**

This course provides an introduction to basic concepts of health care. The student gains an understanding of community health facilities, local and national agencies, and the role of semi-professional in contemporary nursing.

The student gains knowledge of basic human needs, influence of psychosocial factors upon illness, and scientific and medical terminology and principles. He acquires comprehension of simple body reactions to illness and related diagnostic tests.

Concurrent hospital experience enables the student to apply these principles as he begins to provide safe, elementary patient care.

**NUR-103 Fundamentals of Nursing II** **(4 - 6 - 6)**

This course provides for more complex analysis and application of concepts and principles relating to health care. Elements of normal nutrition and principles of asepsis, including isolation techniques, are stressed. In basic pharmacology the student learns about broad groups of therapeutic agents and their action and gains proficiency in utilizing the apothecary-metric system conversion in determining dosage.

Hospital experience is correlated to enable the student to increase his skills in providing total patient care. Prerequisite: NUR 101, CHM 102.

**NUR-105 Fundamentals of Nursing III** **(5 - 6 - 7)**

Centering around the principle of homeostasis, this course includes the study of body defenses against morbidity and progresses to the fundamental processes of disease. Each body system and its specialized defense mechanisms are studied. The student learns appropriate basic nursing action to help modify disease states including fluid imbalance, shock, elimination problems, skin conditions, and altered body temperature and muscle tone. Special needs as presented in long term illness, limited motion, wounds, and communicable disease, and rehabilitation concepts are emphasized.

In the hospital setting the student more skillfully adapts care to meet individual patient needs. Prerequisites: NUR 103, BIO 102.

**NUR-107 Parental and Child Health** **(5 - 12 - 9)**

This course is designed to aid the student in the acquisition of understandings and skills involved in maternal and child care and health promotion. Using the family centered approach, the student has selected learning experiences with mothers during the maternity cycle, and of infants and children from birth to adolescence. Normal aspects are stressed, with adaptations made to include common complications and disease processes in certain groups. Prerequisites: NUR 105, BIO 103.

**NUR-108 Growth and Development** **(3 - 0 - 3)**

This is a study of human development from birth to and including adolescence with attention to social, biological, and cultural factors affecting development.

**NUR-210 Nursing in Physical and Mental Illness I** **(5 - 12 - 9)**

This course is designed to provide a general background of information which will enable her to meet individual patient's needs. Through a study of general manifestations of health and the major variations that occur in illness, both physical and mental, through selected patient assignments, the student will begin to recognize and meet problems arising in patients with less complicated illnesses. Using a "major health problem" approach, consideration will be given to the scope, prevention, diagnosis, treatment, and control of each problem. Attention is given to the predisposing social, cultural, economic factors which influence course and treatment. Beginning emphasis is placed on family involvement and support, as well as the rehabilitative, spiritual, educational and social needs of patients.

**NUR-211 Nursing in Physical and Mental Illness II** **(5 - 12 - 9)**

Building on the understanding gained in NUR-210, the student moves from the area of simple to complex with an emphasis on the more complex needs of patients with more critical health problems. The student advances in her grasp of knowledge and in her abilities to recognize needs, plan and implement care and follow through. Prerequisite: NUR 210.

**NUR-212 Trends in Nursing** **(3 - 0 - 3)**

This is a survey of the history and early education of nursing and the continuation and elevation of this progress up until the present. Emphasis is placed upon the present controversies in nursing service and education and the review of characteristics, advantages, and disadvantages of the Associate Degree Program in Nursing.

**NUR-214 Nursing in Physical and Mental Illness III** **(5 - 12 - 9)**

This is a continuation of NUR-211. The student is guided to make full use of his increasing abilities to plan and implement total care for patients requiring complex and demanding nursing care in the realm of critical physical and mental illness. As part of the nursing team, she will become more aware of the involvement of others in patient care, and of his or her role in participating with and directing some of these members. Attention is given to the nurse's role in emergency and disaster situations, drawing upon knowledge gained in related courses. Prerequisite: NUR 211.

**NUR-215 Community Health** **(3 - 0 - 3)**

This course relates more directly to the health needs of the community, role of public health in providing home care as a continuation of the institutional care with which the students are familiar, and the nurse's role in referral to home care agency.

**NUR-216 Professional Ethics** **(2 - 0 - 2)**

Attention is given to the organizational structure in nursing and to the development of the new graduate's responsibility and opportunities in the area of employment selection, involvement in individual education and the relationship of the ADN graduate to other health team members. The graduate must also keep herself aware of the latest law governing the nursing profession.

## DENTAL HYGIENE

**DHY-101 Dental Anatomy I** **(2 - 6 - 4)**

This course contains structural formation and anatomy of the teeth, eruption data, and gross structure of supporting tissues with emphasis on comparative anatomy. Attention is given to the reproduction of tooth forms by drawing.

**DHY-102 Preventive Dentistry I** **(3 - 0 - 3)**

The preservation and improvement of health in the community is stressed through improving personal habits and conditions of the individual and community. This includes emphasis upon the problems of individual health through an analysis of the various forces which affect the human organism, and the application of scientific facts and principles to these forces.

**DHY-104 Dental Anatomy II** **(2 - 6 - 4)**

This is a continuation of DHY-101, with study given to structure, eruption data, and comparative dental anatomy of deciduous teeth. A specifically detailed study of occlusion and the manual carving of teeth in wax are also included. Prerequisite: DHY 101.

**DHY-105 Preventive Dentistry II** **(3 - 0 - 3)**

This is a survey of the theory and practice of preventive dentistry with emphasis upon the principles and problems of community dental health. Prerequisite: DHY 102.

**DHY-107 Dental Hygiene I** **(1 - 9 - 4)**

This is a study of the techniques of oral prophylaxis as performed within legal limits by the dental hygienist. Clinical practice upon other students and manikins sufficient to render the student competent to perform dental prophylaxis is included. A study is made of the factors which contribute to a healthy condition of the mouth with special attention given to the measures employed to arrest dental caries and adjacent degeneration. The course includes chairside instruction in the dental health of the patint. Prerequisites: DHY 104, DHY 105.

**DHY-108 Office Emergencies** **(2 - 0 - 2)**

This course includes enumeration, description, symptoms, and treatment of the various crises that could arise in the dental office. Included are detailed explanations of the more common emergencies and demonstrations of methods that may be used in their treatment. Prerequisite: DHY 102.

**DHY-109 Dental Materials and Procedure** **(3 - 4 - 5)**

This is a study of the composition and source of materials employed in Dentistry and their behavior under various treatments. The dental hygiene student learns through lectures, demonstrations and laboratory exercises to identify and prepare these materials for any of the routine dental procedures in general practice of dentistry and in the specialties of the dental profession.

**DHY-110 Preventive Dentistry III** **(3 - 0 - 3)**

This is a study of methods and materials used in teaching dental health in schools, in public health institutions, in industry and in dental practice; uses of statistical, visual and auditory aids; records and reports. Prerequisite: DHY 105.

**DHY-111 Dental Hygiene II** **(0 - 13 - 5)**

This is a continuation of Dental Hygiene I. Prerequisite: DHY 107.

**DHY-112 Roentgenology** **(2 - 0 - 2)**

This is a study of the theories and methods for exposing and processing roentgenograms. Sufficient clinical practice methods included in the program to render the student competent to perform these tasks.

**DHY-214 Pharmacology** **(3 - 0 - 3)**

This is a study of drugs by groups, with special consideration of those used in dentistry, including physical and chemical properties, dosage and therapeutic effects. Prerequisites: CHM 102, BIO 102.

**DHY-215 Dental Hygiene III** **(0 - 17 - 6)**

This is a continuation of Dental Hygiene II. Prerequisite: DHY 111.

**DHY-216 Preventive Dentistry IV** **(2 - 0 - 2)**

This is a continuation of Preventive Dentistry III. This course describes the various stages of prevention with explanation of the manner in which dentists can encounter any stage and practice prevention. Study is also given to ethics and jurisprudence in relationship to the public and fellow team workers. Prerequisite: DHY 110.

**DHY-217 Embryology and Oral Histology** **(4 - 2 - 5)**

This is an introductory study of cells, tissues, and organic structures with particular reference to the teeth and oral structures. The use of the microscope and the examination of slides and tissues are included. Prerequisites: BIO 102, CHM 102.

**DHY-219 Pathology** **(3 - 0 - 3)**

This is an introduction to general pathology, with consideration of the more common diseases affecting the human body. The clinical pathology of the diseases affecting teeth and their supporting structures, including consideration of oral manifestations of selected systemic disturbances, is studied.

**DHY-220 Head and Neck Anatomy** **(2 - 0 - 2)**

This is a detailed study of the musculature, blood and nerve supply of the head and neck, reviewing the bones, landmarks, sinuses and foramina of the skull. Prerequisite: BIO 102.

**DHY-221 Nutrition** **(3 - 0 - 3)**

This is the basic principles of nutrition in relation to health and disease. A consideration of diet in reference to body tissues in general and teeth in particular is included.

**DHY-222 Dental Hygiene IV** **(0 - 17 - 6)**

This is a continuation of Dental Hygiene III. Prerequisite: DHY 215.

**DHY-224 First Aid** **(2 - 0 - 2)**

This course is a consideration of causes of accidents; safeguards against accidents; first aid as a preventive measure; administration of first aid promptly and intelligently when emergency demands.

**DHY-225 Dental Hygiene V** **(2 - 20 - 7)**

This is a continuation of Dental Hygiene IV. Prerequisite: DHY 222.

**DHY-226 Practice Administration** **(0 - 0 - 3)**

This is the study of the correct management of a dental practice. It is stressed that dentistry is not only a profession but also a business which concerns itself with right relations with the patient, with other dentists and physicians and with the keeping of adequate service and financial records. The importance of personal and public relations, economics, and community and social relations is included. Prerequisites: Sixth quarter standing in Dental Hygiene curriculum.

## DENTAL ASSISTANT

**DEN-1101 Anatomy and Physiology** **(3 - 0 - 3)**

A lecture course designed to develop a knowledge and understanding of the basic structures surrounding the teeth, formation of the primary and permanent dentition, basic anatomy of individual teeth and the application of these to the carving of restorative patterns. The general anatomy of the body and basic concepts of the normal functions of body systems are also discussed.

**DEN-1102 Introduction to Dental Assisting** **(2 - 0 - 2)**

An introduction to the dental profession; its purpose, history, progress and terminology; members of the dental health team and their education, training, function and respective professional organizations; laws and ethics governing the practice of dentistry; understanding and practical application of personal hygiene; professional and social conduct of the dental assistant.

**DEN-1103 Dental Materials** **(3 - 9 - 6)**

A study of the composition and source of materials employed in dentistry and the behavior of these materials under various treatments. The dental assistant student learns through lectures, demonstrations and laboratory exercises to identify and prepare these materials for any of the routine dental procedures in the general practice of dentistry and in the specialties of the dental profession.

**DEN-1104 Preclinical Science I** **(3 - 3 - 4)**

This course is designed to show how bacteriology and dental health are related, and to demonstrate techniques for successfully coping with the bacteriological problems which arise in the dental office. A portion of the course is devoted to diet and nutrition as applied to dentistry.

**DEN-1106 Preclinical Science II** **(3 - 0 - 3)**

This course covers oral pathology, pharmacology and first aid. Topics studied include fundamental concepts of the more common diseases and disease processes in the oral cavity, the indications, dosage, methods of administration and storage of common drugs and medicaments used in the dental office; first aid and emergency care for the dental patient. Prerequisites: DEN 1101, DEN 1104.

**DEN-1107 Dental Roentgenology** **(2 - 6 - 4)**

Lectures, demonstrations and clinical practice teach the dental assistant student the techniques of exposing, processing and mounting intraoral roentgenograms. The student also learns the various types, speeds and methods of protection of films used in dentistry. Radiation hazards and safety measures, as well as the proper operation of the dental x-ray machine, are studied. Prerequisites: DEN 1101, DEN 1103.

**DEN-1108 Clinical Procedures I** **(2 - 6 - 4)**

The identification of dental equipment and dental instruments for general dentistry and specialized areas with emphasis given to utilization and care. Proper sterilization techniques are stressed. An introduction to chairside procedures. Prerequisites: DEN 1101, DEN 1102, DEN 1103, DEN 1104.

**DEN-1111 Clinical Procedures II** **(4 - 3 - 5)**

A continuation in chairside procedures and techniques from DEN 1108 with emphasis placed on the eight specialties in Dentistry. Prerequisite: Third quarter standing in the Dental Assisting curriculum.

**DEN-1112 Dental Office Management** **(4 - 3 - 5)**

Principles and procedures related to management of the dental office, including maintenance of inventories, ordering of supplies, financial records, clinical records, cavity classification and nomenclature, making appointments, telephone technique and establishing favorable patient relations. Prerequisite: Third quarter standing in the Dental Assisting curriculum.

**DEN-1113 Dental Office Practice I** **(0 - 10 - 4)**

An introduction to practice in the dental office or dental clinic. Emphasis is on the role of assisting in the operatory in a variety of limited dental procedures. Prerequisite: Third quarter standing in the Dental Assisting curriculum.

**DEN-1114 Dental Office Practice II** **(0 - 24 - 8)**

Practice in the dental office or dental clinic; assignments are rotated to encompass experience in office management, the dental laboratory and the operatory. Emphasis on chairside assisting in a variety of clinical procedures. Prerequisite: Fourth quarter standing in the Dental Assisting curriculum.

**DEN-1115 Dental Assistant Seminar** **(2 - 0 - 2)**

A study of personal responsibilities as a practioner, including employee-employer relations, opportunities for continued development as a person and as a health worker, and evaluation of clinical experience. Prerequisite: Fourth quarter standing in the Dental Assisting curriculum.

## MEDICAL LABORATORY ASSISTANT

**MLA-1000 Orientation** **(1 - 0 - 1)**

Introduction to scientific methodology, medical laboratory practice, and the role of laboratory assistant. Field trips provide a broad overview of health resources in the community. Prerequisite: None.

**MLA-1001 Anatomy, Physiology and Basic Pathology** **(2 - 0 - 2)**

Study of anatomy and physiology in relation to disease and medical terminology. Prerequisite: None.

LA 1002 - BASIC SCIENCE

**MLA-1003 Clinical Experience I** **(0 - 27 - 9)**

Supervised, applied practice in the hospital clinical laboratory. This is to further develop skills, knowledge, and attitudes required for meeting the needs of the patient and the laboratory in a hospital environment.

**MLA-1004 Urinalysis** **(1 - 4 - 3)**

Study of urine collection and preservation, physical characteristics of urine, and routine qualitative and quantitative tests. Laboratory practice in identification of physical characteristics, measurements, and performance of specified tests. Prerequisite: None.

**MLA-1005 Hematology I** **(1 - 2 - 2)**

Study of blood constituents and the theory and techniques used in collecting and studying blood samples. Laboratory practice in systems for enumeration of formed elements of the blood, measurement of other blood elements, and determination of sedimentation rates. Prerequisite: None.

**MLA-1008 Blood Bank I** **(1 - 0 - 1)**

Study of techniques utilized in donor screening, phlebotomies, composition, and functions of blood. Prerequisite: None.

**MLA-1009 Clinical Chemistry I** **(2 - 4 - 4)**

Study of the theory and techniques used in the clinical chemistry laboratory. Prerequisite: None.

**MLA-1010 Hematology II** **(1 - 2 - 2)**

Study of coagulation theory and methods for performing specific blood studies. Laboratory practice in procedures related to identification and differentiation of blood cells and to coagulation of blood. Prerequisite: MLA 1005.

**MLA-1012 Clinical Experience II** **(0 - 27 - 9)**

This is a cointinuation of Clinical Experience I. Prerequisite: MLA 1003.

**MLA-1014 Clinical Chemistry II** **(2 - 4 - 4)**

Study of theory and procedures for analysis of specific metabolites. Laboratory practice in performance of specified tests. Prerequisite: MLA 1009.

**MLA-1015 Blood Bank II** **(1 - 0 - 1)**

A study of general principles of immunohematology, and genetics in blood banking. In depth study of technics of blood grouping and compatibility testing. Prerequisite: MLA 1008.

**MLA-1016 Hematology III** **(1 - 2 - 2)**

Applied practice in hospital hematology laboratory. Experiences include patient contact, venipunctures, calibration of hemoglobin curve and hemoglobin and blood diluting pipettes, and duplication of findings of staff technologist on routine analyses of blood samples. Prerequisite: MLA 1010.

**MLA-1018 Clinical Experience III** **(0 - 27 - 9)**

This is a continuation of Clinical Experience II. Prerequisite: MLA 1012.

**MLA-1019 Microbiology** **(2 - 0 - 2)**

Study of common microorganisms and routine techniques of the bacteriology department. Laboratory practice in presumptive identification of common organisms. Prerequisite: None.

**MLA-1020 Parasitology** **(1 - 2 - 2)**

Study of common parasites. Practice in techniques identifying parasites in body specimens. Prerequisite: None.

**MLA-1021 Clinical Experience IV** **(0 - 33 - 11)**

This is a continuation of Clinical Experience III. Prerequisite: MLA 1018.

## PRACTICAL NURSE

**PNE-1011 Nursing** **(12 - 4 - 14)**

This course provides an introduction to the care of patients through a study of basic daily needs of all persons, in sickness and in health. Included is a brief study of the History of Nursing; Orientation to the Roles of Student; Vocational Relations and Review and Practice in Communicative Skills. Instruction provides the opportunity for learning basic principles of nursing and developing skills in meeting the needs of all patients regardless of age, illness condition or degree of dependency.

**PNE-1015 Health** **(3 - 0 - 3)**

In this course the student is taught the positive aspects of health in relationship to the effect on her personal life, the health of people in the community and the patients for whom she cares.

**PNE-1016 Science** **(10 - 2 - 11)**

This course is planned to include the basic scientific facts necessary for understanding the principles of nursing. The study of normal body function and normal nutrition provide a foundation for later study of illness conditions and diet therapy.

**PNE-1020 Clinical Medical-Surgical** **(0 - 15 - 5)**

This portion of the program centers around supervised care of patients in the hospital area. The student has opportunity to practice nursing skills within her experience. Time is planned to enable the student to observe those situations which will add to her information and promote understanding. Ward classes, patient care studies, and patient analysis are used to implement this segment of learning.

**PNE-1022 Medical - Surgical Nursing I** **(12 - 0 - 12)**

Medical-Surgical Nursing is the study of the most common illness conditions affecting the patients for whom the Practical Nurse may care. Stress is placed on application of nursing principles to meet the needs of persons in all age groups, with varying degrees of illness, and different socio-economic backgrounds.

**PNE-1023 Maternal and Infant Care** **(3 - 2 - 4)**

A brief review of the basic needs of all individuals is presented as an introduction to this course in order that the student may develop a better

understanding of the physical and emotional needs of the woman as well as the changes which occur during pregnancy, delivery and lactation. The needs of the infant are studied beginning with conception through fetal development, delivery, and discharge from the hospital.

**PNE-1024 Pediatric Nursing I** **(2 - 0 - 2)**

This course is the study of the growth, development, and behavior of the normal child, including the physical and emotional aspects.

**PNE-1030 Clinical II Obstetrics - Pediatrics** **(0 - 21 - 7)**

This course is designed to give the student the opportunity to develop skills and principles of nursing in the care of the maternity patient, the new born baby, and the sick child. Prerequisites: PNE 1020 and PNE 1023 and PNE 1024.

**PNE-1032 Medical - Surgical Nursing II** **(10 - 0 - 10)**

This course is a continuation of PNE 1022, providing the student with additional knowledge to develop skills necessary to meet the needs of the more dependent patient. Prerequisite: PNE 1022.

**PNE-1034 Pediatric Nursing II** **(2 - 0 - 2)**

This course is a continuation of PNE 1024 and will parallel experiences in the care of the pediatric patient. The purpose is to help the student recognize and meet the nursing needs of the sick child. Prerequisite: PNE 1024.

**PNE-1040 Clinical III Medical - Surgical** **(0 - 21 - 7)**

This course is designed as a continuation of PNE 1020 and gives the student more practice in the skills and principles of the techniques needed in the nursing care of patient. Prerequisite: PNE 1020.

**PNE-1042 Medical - Surgical Nursing III** **(10 - 0 - 10)**

This segment of instruction is a continuation of PNE-1032. The student studies the nursing care of patients with illness conditions due to alteration of function of various body systems. Prerequisites: PNE 1032. and PNE 1032.

**PNE-1044 Vocational Adjustment** **(2 - 0 - 2)**

This is a study of the principles of good personal and vocational behavior of the Practical Nurse which enables her to work with ease and intelligence with other health workers.

## RADIOLOGIC TECHNOLOGY

**RAD-101 Positining I** **(2 - 0 - 2)**

This course should provide precise and detailed information on the various positions and should be supplemented with practical instruction and application in the radiographic room.

**RAD-102 Radiographic Exposure I** **(2 - 0 - 2)**

This course gives the student a thorough understanding of the theory of x-ray technique and to correlate this knowledge with practical application, thus developing a thinking technologist capable of devising a technique based on sound principles and practices.

**RAD-103 Darkroom Technique** **(2 - 0 - 2)**

This course develops the knowledge and skills necessary for thorough and efficient darkroom procedure.

**RAD-104 Terminology** **(3 - 0 - 3)**

This course applies to the specialty of radiology; specifically to learn anatomical names of bones and organs of the body and other anatomical descriptive terms; to learn radiographic terms and their common abbreviations; to learn commonly used medical terms, prefixes and suffixes; to understand the meaning of such terms and their proper usage.

**RAD-105 Film Critique I** **(1 - 0 - 1)**

This course evaluates repeat radiographs and high quality radiographs to instruct students in prevention of technical and positioning errors and how to attain high quality in radiography.

**RAD-106 Clinical Technique I** **(0 - 21 - 7)**

Throughout nine quarters of training the students practice in the affiliated department of radiology and experience patient contact. Abilities and attitudes are evaluated and technical competence is established. The student is supervised but individual performance is required before completion of this portion of training.

**RAD-111 Positioning II** **(2 - 0 - 2)**

This course is a continuation of Positioning I. Prerequisite: RAD 101.

**RAD-112 Radiographic Exposure II** **(1 - 0 - 1)**

This course is a continuation of Radiographic Exposure I. Prerequisite: RAD-102.

**RAD-113 Film Critique II** **(1 - 0 - 1)**

This is a continuation of Film Critique I. Prerequisite: RAD-105.

**RAD-114 Clinical Techniques II** **(0 - 21 - 7)**

This is a continuation of Clinical Techniques I. Prerequisite: RAD-106.

**RAD-121 Positioning III** **(2 - 0 - 2)**

This is a continuation of Positioning II. Prerequisite: RAD-111.

**RAD-122 Radiographic Exposure III** **(1 - 0 - 1)**

This is a continuation of Radiographic Exposure II. Prerequisite: RAD-112.

**RAD-123 Film Critique III** **(1 - 0 - 1)**

This is a continuation of Film Critique II. Prerequisite: RAD-113.

**RAD-124 Clinical Techniques III** **(0 - 24 - 8)**

This is a continuation of Clinical Techniques II. Prerequisite: RAD-114.

**RAD-125 Nursing Procedures** **(2 - 0 - 2)**

This course acquaints the student with nursing procedures and techniques used in the general care of the patient with emphasis on the role of the radiologic technologist in various nursing situations.

**RAD-131 Positioning IV** **(1 - 0 - 1)**

This is a continuation of Positioning III. Prerequisite: RAD-121.

**RAD-132 Film Critique IV** **(1 - 0 - 1)**

This is a continuation of Film Critique III. Prerequisite: RAD-123.

**RAD-134 Clinical Technique IV** **(0 - 27 - 9)**

This is a continuation of Clinical Technique III. Prerequisite: RAD-124.

**RAD-135 Radiological Anatomy** **(2 - 0 - 2)**

This course enables the student to interpret accurately requests for x-ray examinations, to properly position the part or area to be radiographed, to recognize the structures and organs visualized, and to understand the normal functions of organs as a basis for certain x-ray examinations

**RAD-201 Positioning V** **(2 - 0 - 2)**

This is a continuation of Positioning IV. Prerequisite: RAD-131.

**RAD-202 Film Critique V** **(1 - 0 - 1)**

This is a continuation of Film Critique IV. Prerequisite: RAD 132.

**RAD-203 Clinical Technique V** **(0 - 27 - 9)**

This is a continuation of Clinical Technique IV. Prerequisite: RAD-134.

**RAD-204 Advanced Radiologic Techniques I** **(1 - 0 - 1)**

This course provides advanced formulation of techniques for all phases of radiography and special procedures, with experimentation on various technical procedures with detailed technical writings to coordinate the results of the experiments, and radiation monitoring in conjunction with variations of techniques to evaluate patient dosages for various examinations.

**RAD-205 Medical Use of Radioisotopes** **(1 - 0 - 1)**

This course acquaints the student with the necessary physics, the fundamentals of radioisotope technique and the role of the technologist in their use. Training of technologists in the relatively new field of medical use of radioisotopes usually implies development of skills in laboratory as well as in radiological technology.

**RAD-210 Positioning VI** **(2 - 0 - 2)**

This is a continuation of Positioning V. Prerequisite: RAD-201.

**RAD-211 Film Critique VI** **(1 - 0 - 1)**

This is a continuation of Film Critique V. Prerequisite: RAD-202.

**RAD-212 Clinical Technique VI** **(0 - 30 - 0)**

This is a continuation of Clinical Technique V. Prerequisite: RAD-203.

**RAD-213 Advance Radiologic Tech. II** **(1 - 0 - 1)**

This is a continuation of Advanced Radiologic Techniques I. Prerequisite: RAD-204.

**RAD-214 Equipment and Maintenance** **(1 - 0 - 1)**

This course familiarizes the student with the component circuits of an x-ray unit, to permit detection and correction of simple difficulties which interfere with or prevent the proper function of the equipment or accessories, as well as fundamentals of preventive maintenance to avoid expensive breakdown.

**RAD-221 Positioning VII** **(2 - 0 - 2)**

This is a continuation of Positioning VI. Prerequisite: RAD-210

**RAD-222 Film Critique VII** **(1 - 0 - 1)**

This is a continuation of Film Critique VI. Prerequisite: RAD-211.

**RAD-223 Clinical Technique VII** **(0 - 30 - 10)**

This is a continuation of Clinical Technique VI. Prerequisite: RAD-212.

**RAD-224 Adv. Radiologic Techniques III** **(1 - 0 - 1)**

This is a continuation of Advanced Radiologic Techniques II. Prerequisite: RAD-213.

**RAD-225 Principles of Radiation Therapy** **(2 - 0 - 2)**

This course is designed to meet the basic minimal requirements for technologists in radiation therapy. It is slanted toward the student whose training is primarily in the field of diagnostic x-ray technology but whose subsequent employment may include duties in radiation therapy. The lectures are supplemented by at least one month of practical experience in the therapy department. It is recommended that experience be provided as well in the use of radium and radioactiv isotopes with demonstration of the more commonly employed applicators and with emphasis placed upon the storage and handling of radioactive materials and the protective measures which must be taken in their use.

**RAD-231 Positioning VIII** **(1 - 0 - 1)**

This course is the final stage of study of positions for special examinations. Prerequisite: RAD-221.

**RAD-232 Film Critique VIII** **(1 - 0 - 1)**

This is a continuation of Film Critique VII. Prerequisite: RAD-222.

**RAD-233 Clinical Technique VIII** **(0 - 36 - 12)**

This is a detailed practicum with evaluations by the assigned supervisors and radiologists as a prerequisite for final practicum evaluation. Prerequisite: RAD-223.

**RAD-107 Radiologic Math and Physics** **(3 - 0 - 3)**

This course provides a review of Applied Mathematics and teaches the fundamentals of Electrical and Radiation Physics.

## AIR CONDITIONING - REFRIGERATION

**AHR-1121 Fundamentals of Refrigeration: Domestic** **(3 - 12 - 7)**

Terminology, laws of refrigeration, absolute pressure, and absolute temperature, energy conversion units; specific heat, laten heat, and sensible heat; measurement of heat in quantity and intensity; ton of refrigeration, pressure temperature relationships; transfer of heat by conduction, convection, and radiation; elementary refrigeration, refrigeration cycle and domestic refrigeration circuits and controls. Tools, materials, and methods applicable to refrigeration; bending, and joining tubing. Safety practices will be stressed. Emphasis will be placed on domestic equipment because of its basic nature. Prerequisite: None.

**AHR-1122 Fundamentals of Refrigeration: Commercial** **(3 - 12 - 7)**

Commercial refrigeration installation and servicing of display cabinets, walk in coolers and freezer units and mobile refrigeration systems are studied. The use of catalogs are used to calculate heat loads, sizing, and matching system components and a study of circuits and controls, refrigerants, oils, and methods are made. The American Standard Safety Code for refrigeration is studied and its principles practiced. Prerequisite: AHR 1121.

**AHR-1123 Principles of Air Conditioning** **(3 - 12 - 7)**

Work includes the selection of various heating, cooling, and ventilating systems, investigation and control of factors affecting air cleaning, movement, temperature, and humidity. Use is made of the psychrometric chart and sling pshchrometer in determining needs to produce optimum temperature and humidity control. Commercial air conditioning equipment is assembled and tested. Heating and coding loads are estimated and duct pressures are studied. Circuit and controls both electric and pneumatic are applied to heating and cooling. Practical sizing and balancing of duct work is performed as needed. Prerequisite: AHR 1122.

**AHR-1124 Principles of Heating: Fuels and Burners (3 - 6 - 5)**

Fuels and burners used in supplying heat for various types of heating systems — coal, oil, natural gas, manufactured gas, liquified petroleum gas, and electricity. Experiments in equipment selection, installation, adjustments, and servicing will be conducted. Warm air systems, heat emitter, electric heating, forced hot water and steam heating systems, including selection and sizing of equipment — registers, grills, furnaces, boilers, radiators, baseboards, piping, and ducts. Heating layout and specifications for an existing structure or one in blueprint stage will be prepared. Prerequisite: AHR 1123.

**AHR-1126 All Year Comfort Systems and A.C. Servicing (3 - 6 - 5)**

Emphasis is placed on the installation, maintenance, and servicing of equipment used in the cleaning, changing, humidification, dehumidification, temperature control, and distribution of air in conditioned spaces. Installation of various ducts and lines needed to connect various components is made. Shop work involves circuit and controls, testing, and adjusting of air conditioning and refrigeration equipment, and locating and correction of equipment failure. Prerequisite: AHR 1124.

**AHR-1127 Duct Construction and Maintenance (3 - 6 - 5)**

Study of various duct materials including sheet steel, aluminum, fiber glass, and plastic. Safety, sheet metal hand tools, cutting and shaping machines, fasteners, and fabrication practices, layout methods, and development of duct systems. The student will study and service various duct systems and perform repairs including ducts made of fiber glass. A study is made of duct fittings, dampers and regulators, diffusers, heater and air washers, fans, insulation and ventilating hoods. Prerequisite: DFT 1116, AHR 1123. Corequisite: AHR 1126.

## AUTOMOTIVE

**AUT-1101 Internal Combustion Engine (3 - 12 - 7)**

Development of a thorough knowledge and ability in using, maintaining, and storing the various hand tools and measuring devices needed in engine repair work. Study of the construction and operation of components of internal combustion engines. Testing of engine performance; servicing and maintenance of engine block, crankshaft, pistons, valves, cams and camshafts, fuel and exhaust systems, cooling systems; proper lubrication;; and methods of testing, diagnosing and repairing. Prerequisite: None.

**AUT-1102 Engine Electrical and Fuel Systems (5 - 12 - 9)**

A thorough study of the electrical and fuel systems of the automobile. Battery cranking mechanism, generator, ignition, accessories and wiring; fuel pumps, carburetors, and fuel injectors. Characteristics of fuels, types of fuel systems, special tools, and testing equipment for the fuel and electrical system. Prerequisite: AUT 1101.

**AUT-1121 Braking Systems (3 - 3 - 4)**

A complete study of various braking systems employed on automobiles and light weight trucks. Emphasis is placed on how they operate, proper adjustment, and repair. Prerequisite: PHY 1101.

**AUT-1123 Automotive Chassis and Suspension Systems (3 - 9 - 6)**

Principles and functions of the components of automotive chassis. Practical job instruction in adjusting and repairing of suspension, and steering systems. Units to be studied will be shock absorbers, springs, steering systems, steering linkage, and front end and alignment. Prerequisite: PHY 1101.

**AUT-1124 Automotive Power Train Systems** **(3 - 9 - 6)**

Principles and functions of automotive power train systems; clutches, transmission gears, torque converters, drive shaft assemblies, rear axles and differentials. Identification of troubles, servicing, and repair. Prerequisites: PHY 1102, AUT 1123.

**AUT-1125 Automotive Servicing** **(3 - 9 - 6)**

Emphasis is on the shop procedures necessary in determining the nature of trouble developed in the various component systems of the automobile. Troubleshooting of automotive systems, providing a full range of experiences in testing, adjusting, repairing and replacing. Prerequisites: AUT 1123, AUT 1121, AHR 1101. - not offered

## BUILDING CONSTRUCTION

5-15-10

**CAR-1101 Carpentry I** ~~**(2 - 6 - 4)**~~

This course will be presented as an introduction to the first steps necessary from the finished foundation to the complete framing of a building. Methods of framing entire walls before erection will be presented. Motion saving methods and overall planning of time will be presented. Size of nails and identification of nails will be studied.

5-15-10

**CAR-1102 Cabinetmaking I** ~~**(5 - 12 - 9)**~~

This course is designed to introduce the student to hand tools used in a cabinet shop. After several projects with hand tools the student will be placed on each machine. Various types of wood will be used and identification of the various types of wood will be required.

0 15 5

**CAR-1103 Carpentry II** ~~**(2 - 5 - 3)**~~

In this course the students will study all types of roof construction. Each student will be required to cut and assemble all type of rafters. Students will be required to put on all types of shingles and prepare a roof for "built up construction". The students will also be required to study the framing square in order to figure the length of rafters and cutting of all types of rafters and truss construction. NO PREREQ

0 15 5

**CAB-1104 Cabinetmaking II** ~~**(3 - 6 - 5)**~~

This course will go into the necessary framing for cabinet work. Students will be presented a study of built-in cabinets and pre-constructed cabinet work. Built-in book cases and special work will be presented.

NO PREREQ

0 15 5

**CAR-1105 Carpentry III** ~~**(3 - 11 - 7)**~~

This course will present the student with the finish work of carpentry. Types of baseboard, moulding, door facing, and framing and finishing stair cases will be presented. Each student will be subjected to a series of projects under close supervision that will require use of all finishing tools normally used by a carpenter. Clean work and self pride will have an emphasis in this course. NO PREREQ

0 15 5

**CAB-1106 Cabinetmaking IV** ~~**(2 - 6 - 4)**~~

This is a study of the type of materials used on tops and other finished areas. Each student will study built-in appliances such as stoves, ovens, dishwashers, and refrigerators. Finished cornice and standard measurements of all cabinet work will be presented. NO PREREQ

## DIESEL ENGINES AND HYDRAULIC SYSTEMS

**HEV-1101 Diesel Engine Theory and Practice (3 - 12 - 7)**

This course is designed as an introduction to the most common types of diesel engines. Each student will be subjected to the principles and theory of the diesel engine and required to work with several different typs of engines. As the engines are rebuilt the proper use of hand tools and instruments will be taught. Standard procedures will be used in all engine work. Methods of checking the various parts of the engines will be employed.

**HEV-1102 Diesel—Electrical, Fuel, Lubricating and Cooling Systems (3 - 15 - 8)**

This course continues from the engine course and will subject the student to the electrical system, fuel system, and lubricating systems. Each area will be treated as an individual unit. Each student will compare the various systems of Heavy Equipment. Preventive maintenance will be stressed in all areas. Types of fuel and the importance of pure and clean fuel will be taught. Tools, instruments, and machines related to these units will be presented.

**HEV-1103 Diesel—Hydraulic, Steering, Braking, Suspension, Power Train (3 - 15 - 8)**

This course continues from the engine course and will advance the student into the actual hydraulic systems, steering, suspension, braking, and cooling systems. Each subject area will be treated as an individual unit taught separately. Each student will be required to study the difference in systems on various pieces of equipment. Tools, machines, and instruments used in the various aspects of this work will be presented.

**HEV-1104 Fuel Injection Testing and Repair (1 - 2 - 3)**

This course is designed to go into all types of fuel systems. This is a study of theory, construction, operation, repair, and testing of all kinds of injection nozzles—actual experiences in removing, cleaning, repairing, and testing of fuel nozzles. Special tools and instruments used in maintenance and repair will be presented.

**HEV-1105 Diesel—Service and Repairs (3 - 18 - 9)**

This course is constructed to require students to utilize all tools, instruments, and machines for analysis of all aspects of service and repair. The procedures employed in service and repair will be the same as expected in the industry. Each student will be expected to show individual ability and initiative in determining the troubled area of heavy equipment.

## MACHINE SHOP

**MES-1101 Machine Shop Theory and Practice (3 - 12 - 7)**

An introduction to the machinist trade and the potential it holds for craftsman. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice. Prerequisite: None.

**MES-1102 Machine Shop Theory and Practice (3 - 12 - 7)**

Advanced operations in layout tools and procedures, power sawing, drill press, surface grinder, milling machine shaper. The student will be introduced to the basic operations on the cylindrical grinder and will select projects encompassing all the operations, tools and procedures thus far used and those to be stressed throughout the course. Prerequisite: MES 1101.

**MES-1103 Machine Shop Theory and Practice** **(3 - 12 - 7)**

Advanced work in the engine lathe, turning, boring and threading machines, grinders, milling machine and shaper. Introduction to basic indexing and terminology with additional processes on calculating, cutting and measuring of spur, helical, and worm gears and wheels. The trainee will use precision tools and measuring instruments such as vernier height gages, protractors, comparators, etc. Basic exercises will be given on the turret lathe and on the tool and cutter grinder. Prerequisite: MES 1102.

**MES-1104 Machine Shop Theory and Practice** **(5 - 12 - 9)**

Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly and inspection. Additional processes on the turret lathe, tool and cutter grinder, cylinderical and surface grinder, advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedures faithfully and establishing of good work habits and attitudes acceptable to the industry. Prerequisite: MES 1103.

**MES-1112 Machine Shop Processes** **(0 - 5 - 2)**

An introduction to machine shop. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout prcedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice. Prerequisite: None.

**MES-1115 Treatment of Ferrous Metals** **(2 - 3 - 3)**

Investigate the properties of ferrous metals and tests to determine their uses. Instructions will include some chemical metallurgy to provide a background for the understanding of the physical changes and causes of these changes in metals. Physical metallurgy of ferrous metals, producing iron and steel, theory of alloys, shaping and forming, heat treatments for steel, surface treatments, alloy of special steel, classification of steels, and cast iron will be topics for study. Prerequisite: None.

**MES-1116 Treatment of Non-Ferrous Metals** **(2 - 1 - 2)**

Continuation of the study of physical metallurgy. The non-ferrous metals: bearing metals, (brass, bronze, lead), light metals (aluminum and magnesium), and copper and its alloys are studied. Powder metallurgy, titanium, zirconium, indium and vanadium are included in this course. Prerequisite: MES 1115.

**MES-1124 Metallurgy** **(2 - 1 - 3)**

Introductory course in metallurgy, a basic study of the properties of metals and alloys. Analysis of the structure of metals and alloys, atomic structure, nuclear structure, and nuclear reactions. Slid (crystalline) structures, methods, methods of designating crystal planes; liquid and vapor phases; phase diagrams; and alloy systems. Prerequisite: None.

## TOOL AND DIE MAKING

**TDY-1201 Machine Processes** **(3 - 12 - 7)**

This course is designed to introduce the student to the tools, instruments, machines, and methods used in the tool and die shop. Basic die-making theory will be presented as it pertains to simple piercing, blanking, and bending dies. Each student will be subjected to a series of projects requiring extreme proficiency. Prerequisite: Machine Shop Graduate or equivalent.

**TDY-1202 Machine Processes** **(3 - 12 - 7)**

This course is a study of certain individual parts that go into a die assembly. Students will go into detail concerning their making, assembly, functioning and properties necessary for satisfactory service. Continued project work will point out the requirements for precise work. Prerequisite: TDY 1201.

**TDY-1203 Metallurgy** **(3 - 0 - 3)**

This is a study of a special group of steels used by the tool and die industry. Students are concerned with the selection, machining, and heat treating of these steels. Troubleshooting to find the reason for possible failure of the steel and the remedy required will be an important part of this course. Prerequisite: None.

**TDY-1204 Machine Processes** **(3 - 12 - 7)**

This course is a continuation of MEC 1202 in which students will make a detailed study of die-block construction, strippers and stock guides, shedders and knockouts, nest gages, and pushers. Project work has advanced to the finish grinding and assembly stage requiring high quality work from the student. Prerequisite: TDY 1202.

* TDY 1205 STRENGTH OF MATERIALS

**TDY-1206 Machine Processes** **(3 - 12 - 7)**

A study of die stops completes the study of die components as presented in this course. Stock strip utilization and strip layout will be covered. Die sets and purchased parts will be discussed. We will study die assembly, set up practices, punch press operation, and a miscellaneous group of methods necessary to complete this course. (no pre req.)

**TDY-1207 Special Problems and Molding** **(3 - 4 - 5)**

This course will be used to subject the student to special problems within local industries. Numerous field trips will be scheduled to review installation of systems, development of dies, tools, jigs and fixtures, and gaging. Each student will be required to follow one complete system from the design stage through to production. Special procedures of die casting, sand casting, shell molding, injection molding, hydro forming, and others will be presented. (no pre req.)

* **MEC-1205 Strength of Materials** **(5 - 0 - 5)**

A study of stresses and shears that occur in materials when subjected to tensile, compressive, and/or shearing forces. Stresses in thin walled cylinders, riveted and welded joints, shear and bending moment diagrams, deflection, eccentrically applied loads, torsion, and factors of column design will be emphasized. Prerequisite: MAT 1203.

**MEC-1209 Hydraulics and Pneumatics** **(3 - 0 - 3)**

A basic study of the principles of power hydraulics. Component parts such as reservoirs, strainers, filters, piping and fittings, motors, pumps, and valves will be thoroughly studied. Practical circuits and systems will be covered especially as they are used in the tool and die industry. Prerequisite: None.

**MEC-1212 Tool Planning** (2-3-3)

This course will enable the student to plan the process of production and isolate the areas that must be tooled for production. Cost of tools, die work, jig and fixtures, and gaging will be considered. Students will review available items from vendors and utilize standard bushing charts and other references. Typical tool design procedures will be employed and prints must reflect standard procedures. (no pre req.)

## WELDING

**WLD-1101 Basic Welding and Cutting** **(1 - 2 - 2)**

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding and flame cutting. Emphasis on electric arc and gas welding methods applicable to mechanical repair work. Bronze welding and silver soldering may also be covered.

**WLD-1112 Mechanical Testing and Inspection (1 - 3 - 2)**

The standard methods for mechanical testing of welds. The student is introduced to the various types of tests and testing procedures and performs the details of the test which will give adequate information as to the quality of the weld. Types of tests to be covered are: bend, destructive, free-bend, guided-bend, nick-tear, notched-bend, tee-bend, nondestructive, V-notch, Charpy impact, etc. Prerequisites: WLD 1120, WLD 1121.

**WLD-1120 Oxyacetylene Welding and Cutting (3 - 12 - 7)**

Introduction to the history of oxyacetylene welding, the principles of welding and cutting, nomenclature of the equipment, assembly of units. Welding procedures such as practice of puddling and carrying the puddle, running flat beads, butt welding in the flat, vertical and overhead position, brazing, hard and soft soldering. Safety procedures are stressed throughout the program of instruction in the use of tools and equipment. Students perform mechanical testing and testing and inspection to determine quality of the welds. Prerequisite: None.

**WLD-1121 ARC Welding (3 - 12 - 7)**

The operation of AC transformers and DC motor generator arc welding sets. Studies are made of welding heats, polarities, and electrodes for use in joining various metal alloys by the arc welding process. After the student is capable of running beads, butt and fillet welds in all positions are made and tested in order that the student may detect his weaknesses in welding. Safety procedures are emphasized throughout the course in the use of tools and equipment. Prerequisite: None.

**WLD-1122 Commercial and Industrial Practices (3 - 9 - 6)**

Designed to build skills through practices in simulated industrial processes and techniques: sketching and laying out on paper the size and shape description, listing the procedure steps necessary to build the product, and then actually following these directions to build the product. Emphasis is placed on maintenance, repairing worn or broken parts by special welding applications, field welding and nondestructive tests and inspection. Prerequisites: WLD 1120, WLD 1121.

**WLD-1123 Inert Gas Welding (1 - 3 - 2)**

Introduction and practical operations in the use of inert-gas-shield arc welding. A study will be made of the equipment, operation, safety and practice in the various positions. A thorough study of such topics as: principles of operation, shielding gases, filled rods, process variations and applications, manual and automatic welding. Prerequisites: WLD 1120, WLD 1121.

**WLD-1124 Pipe Welding (3 - 12 - 7)**

Designed to provide practice in the welding of pressure piping in the horizontal, vertical, and horizontal fixed position using shielded metal arc welding processes according to Sections VIII and IX of the ASME code. Prerequisite: WLD 1121.

**WLD-1125 Certification Practices (3 - 6 - 5)**

This course involves practice in welding the various materials to meet certification standards. The student uses various tests including the guided bend and the tensile strength tests to check the quality of his work. Emphasis is placed on attaining skill in producing quality welds. Prerequisites: WLD 1120, WLD 1121, WLD 1123, WLD 1124.

## NATURAL SCIENCE

**BIO-101 Human Anatomy and Physiology I** **(4 - 3 - 5)**

A study of the structure and normal functions of the human body and its systems with emphasis upon the inter-related functions of various parts and systematic processes in the development of basic physiological principles.

**BIO-102 Human Anatomy and Physiology II** **(4 - 3 - 5)**

A continuation of BIO-101. Prerequisite: BIO-101.

**BIO-103 Microbiology** **(4 - 3 - 5)**

This is a study of microorganisms, pathogenic and non-pathogenic, their relation to disease, community problems and implications for safe nursing techniques.

**BIO-105 General Bacteriology** **(4 - 2 - 5)**

An introductory course in general bacteriology with a survey of microscopical plants and animals forms with emphasis upon the morphology, physiology and ecology of bacteria. The nature and activities of common microorganisms of humans, soil, water, food, and milk are also studied.

## ENGLISH - PSYCHOLOGY - SOCIOLOGY

**ENG-100 Reading and Comprehension** **(3 - 2 - 4)**

A sincere effort to encourage the student's development of reading comprehension and reading rate. Emphasizing the grasp of basic ideas rather than words. To have a storehouse of workable techniques which the student may use in reading assignments. Thus, helping him to identify, interpret, and evaluate ideas. With purposeful practice and adequate motivation the students achievement will improve. Prerequisite: None.

**ENG-101 Grammar** **(3 - 0 - 3)**

Designed to aid the student in the improvement of self-expression in grammar. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life. Prerequisite: None.

**ENG-102 Composition** **(3 - 0 - 3)**

Designed to aid the student in the improvement of self-expression in business and technical composition. Emphasis is on the sentence, paragraph, and whole composition. Prerequisite: ENG 101.

**ENG-103 Report Writing** **(3 - 0 - 3)**

The fundamentals of English are utilized as a background for the organization and techniques of modern report writing. Exercises in developing typical reports, using writing techniques and graphic devices are completed by the students. Practical application in the prepartion of a full-length report is required of each student. This report is based on material in his chosen curriculum. Prerequisite: ENG 102.

**ENG-204 Oral Communication** **(3 - 0 - 3)**

A study of basic concepts and principles of oral communications to enable the student to communicate with others. Emphasis is placed on the speaker's attitude, diction, voice, and the application of particular techniques to correct speaking habits and to produce effective oral presentation. Particular attention is given to conducting meetings, conferences, and interviews. Prerequisite: ENG 101.

**ENG-205 Written Communication for Secretaries** **(5 - 0 - 5)**

A communications course designed for secretarial students who must learn to initiate written documents for the employer. Primary emphasis is placed upon the development of skills in the techniques of writing business letters, such as credit and collections, complaints, orders, acknowledgments, remittances, inquiries, and answers to inquiries. The student will also learn to write business reports based upon the accumulation of primary data and to summarize business conferences. Prerequisite: ENG 102

**ENG-206 Business Communication** **(3 - 0 - 3)**

Develops skills in techniques in writing business communications. Emphasis is placed on writing action—sales letters and prospectuses, business reports, summaries of business conferences, letters involving credit, collections, adjustments, complaints, orders, acknowledgements, remittances, and inquiry. Prerequisite: ENG 102.

**ENG-207 American Literature** **(3 - 0 - 3)**

By use of selected readings in American literature, the student gains an appreciation and critical knowledge of great writings. Contributing to cultural enrichment and critical thinking ability. Prerequisite: None.

**ENG-1101 Reading Improvement** **(2 - 0 - 2)**

Designed to improve the student's ability to read rapidly and accurately. Special machines are used as required for drill to broaden the span of recognition, to increase eye coordination, and to train for comprehension in larger units. Prerequisite: None.

**ENG-1102 Communication Skills** **(3 - 0 - 3)**

Designed to promote effective communication through correct language usage in speaking and writing. Prerequisite: ENG 1101.

**ENG-1103 Report Writing** **(3 - 0 - 3)**

This course is designed to aid the student in the improvement of self-expression in business and technical composition. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation and spelling. The objective is to stimulate students to apply the basic principles of English grammar to their day-to-day situations in industry and social life. Prerequisite: ENG 1102.

**ENG-1104 Speech** **(3 - 0 - 3)**

A study of the mechanics of speech; adaptation of method to purpose in speaking; preparation of specific kinds of speeches; presentation of extemporaneous, impromptu, prepared and memorized material. Prerequisite: ENG 1102.

**PSY-101 Introduction to Psychology** **(3 - 0 - 3)**

This is an introductory survey of history and schools of thought in psychology, including topics such as intelligence, learning, motivation, and emotions. Prerequisite: None.

**PSY-203 Abnormal Psychology** **(3 - 0 - 3)**

This is a study of the major abnormal behavior patterns and ways by which these aberrant patterns of thinking and acting are developed. Some attention is given to prevention of mental illness and the study of normal defense and escape mechanisms. Prerequisite: PSY 101.

**PSY-205 Personality Theory** **(5 - 0 - 5)**

The course is designed to help the student recognize the importance of the physical, intellectual, social and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement. Prerequisite: PSY 101.

**PSY-206 Applied Psychology** **(3 - 0 - 3)**

A study of the principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feelings and emotions are considered with particular reference to on-the-job problems. Other topics investigated are employee selection, supervision, job satisfaction, and industrial conflicts. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community. Prerequisite: None.

**PSY-208 Human Development** **(5 - 0 - 5)**

This course shows the development of the normal child and adolescent, with consideration of the social, biological, and cultural influences upon growth. Prerequisite: PSY 205.

**PSY-1101 Human Relations** **(3 - 0 - 3)**

A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation. Prerequisite: None.

**SOC-201 Social Science** **(3 - 0 - 3)**

An integrated course in the social sciences, drawing from the fields of anthropology, psychology, history, and sociology. Prerequisite: None.

**SOC-203 Family Sociology** **(3 - 0 - 3)**

This is a study of the structure and function of the family, cultural patterns, and marriage and child rearing patterns. Prerequisite: SOC 201.

## MATHEMATICS

**MAT-100 Basic Mathematics** **(5 - 0 - 5)**

Introduction to mathematics including operations with numbers, fractions, per cent, dimensional analysis, signed numbers, elementary algebra, linear equations, basic plane and solid geometry with emphasis on applications. Prerequisite, entrance requirements.

**MAT-101 Algebra and Trigonometry I** **(5 - 0 - 5)**

Number systems of various bases are introduced. Fundamental algebra operations, the rectangular coordinate system, as well as fundamental trigonometric concepts and operations are introduced. The application of these principles to practical problems is stressed. Prerequisite: MAT 100.

**MAT-102 Algebra and Trigonometry II** **(5 - 0 - 5)**

A continuation of MAT 101. Advanced algebraic and trigonometric topics include quadratics, logarithms, determinants, matrices, progressions, the binominal expansion, complex numbers, solution of oblique triangles and graphs of the trigonometric functions. Prerequisite: MAT 101.

**MAT-103 Analytical Geometry and Calculus I** **(5 - 0 - 5)**

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics included are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed. Prerequisite: MAT 102.

**MAT-104 Mathematics of Finance** **(5 - 0 - 5)**

The usual business mathematics review of elementary mathematics is omitted because of the prerequisite. The course consists of applied business mathematics with emphasis on the topics which can be implemented on a computer. The course includes interest, present value, discount, compound interest, annuities, extinction of debts, and depreciation. Prerequisite: MAT 101, Corequisite: BUS 110.

**MAT-110 Business Mathematics I** **(5 - 0 - 5)**

This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business. Prerequisite: None.

**MAT-111 Business Mathematics II** **(3 - 0 - 3)**

This course is a continuation of MAT 110 with further study into the topics of payrolls, price marketing, interest, and discount, commission, taxes, and pertinent uses of mathematics in the field of business. Prerequisite: MAT 110.

**MAT-112 Mathematics of Business Finance** **(3 - 2 - 4)**

The course consists of practical application of business financial transactions involving analysis of statements, interest, present value, yield, discount, compound interest, annuities, extinction of debt and depreciation. Use of modern calculating equipment will be employed. Prerequisites: MAT 111 and BUS 110.

**MAT-114 Basic Descriptive Statistics** **(3 - 2 - 4)**

A course in descriptive statistics with emphasis on classification of variables, methods of collecting and presenting data, measures of central tendencies, and types of variables and an introduction to frequency distribution. Prerequisite: MAT 111.

**MAT-121 Numbering Systems and Boolean Algebra** **(3 - 0 - 3)**

It is a study of various numbering systems with emphasis on the binary, octal and hexadecimal as related to one another, the decimal system, and computers; conversions from one system to another; arithmetic operations in non-decimal systems; elementary logic; and Boolean Algebra. Prerequisite: None.

**MAT-201 Calculus II** **(5 - 0 - 5)**

A continuation of MAT 103. More advanced concepts of differentiation and integration are considered. Included are derivatives of the trigonometric functions, exponential and logarithmic differentiation and intergration, advanced integration techniques, polar equations, parametric equations. Prerequisite: MAT 103.

**MAT-214 Statistics I** **(5 - 0 - 5)**

This is an introduction to statistics with emphasis on data analysis including frequency distributions, measures of location and variation; and probability. Practical problems support the theory. Prerequisite: MAT 101.

**MAT-1101 Fundamentals of Mathematics** **(5 - 0 - 5)**

Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades Practice in depth. Prerequisite: None.

**MAT-1103 Geometry** **(4 - 0 - 4)**

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction, areas and volumes of solids. Geometric principles are applied to shop operations. Prerequisite: MAT 1101.

**MAT-1104 Trigonometry** **(3 - 0 - 3)**

Trigonometric ratios; solving problems with right triangles, using tables, and interpolation; solution of oblique triangles using law of sines and law of cosines; graphs of the trigonometric functions; inverse functions, trigonometric equations. All topics are applied to practical problems. Prerequisite: MAT 1103.

**MAT-1123 Machinist Mathematics** **(3 - 0 - 3)**

Introduces gear ratio, lead screw and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric propositions and trigonometric relations to shop problems; concludes with an introduction to compound angle problems. Prerequisite: MAT 1104.

**MAT-1203 Trigonometry** **(5 - 0 - 5)**

A basic review of mathematics will form a foundation for a study of trigonometry of right triangles, oblique triangles, and dimensional analysis. Applications to typical problems found in the tool and die shop will be presented and solutions will be found by using mathematics. Prerequisite: MAT 1123.

**MAT-1204 Compound Angles and Curves** **(5 - 0 - 5)**

The application of trigonometry and geometry are presented to solve compound angle problems. This course will use as many practical problems as possible to enable the student to work with typical problems. Prerequisite: MAT 1203.

## PHYSICS

**PHY-101 Physics: Properties of Matter** **(3 - 2 - 4)**

A fundamental course covering basic principles of physics including solids and their characteristics, liquids at rest and in motion, gas laws and applications. Units of measurements and their applications are a vital part of this course. Laboratory experiments and specialized problems dealing with these topics are a part of this course. Prerequisite: MAT 100.

**PHY-102 Physics: Mechanics** **(3 - 2 - 4)**

Major areas covered in this course are force, motion, work, energy and power. Instruction includes such topics as vectors and graphic solutions, basic machines, friction and torque. Prerequisites: PHY 101, MAT 101.

**PHY-103 Physics: Electricity** **(3 - 2 - 4)**

Basic theories of A.C. and D.C. including the electron theory and production of electricity by chemical action, friction, magnetism and induction. Industrial applications involving the use of voltage, amperage, resistance, horsepower and wattage are major parts of the course. Prerequisites: PHY 101, MAT 102.

**PHY-104 Physics: Light and Sound** **(3 - 2 - 4)**

A survey of the concepts involving wave motion leads to a study of sound, its generation transmission and detection. The principles of wave motion also serves as an introduction to a study of light, illumination and the principle involved in optical instruments. Application is stressed throughout. Prerequisites: MAT 101, PHY 102.

**PHY-201 Modern Physics** **(3 - 2 - 4)**

An introduction to the important developments in atomic and nuclear physics since the beginning of the present century. The investigation of the photoelectric effect, general relativity, quantum mechanics, and wave mechanics as applied to the statistical treatment of semiconductive crystals. A study of the effective sizes of the electron and the various elemental nuclei. A survey of nuclear radiation effects, radiation counters and detectors, cheronkov radiation and photomultiplication as these affect modern industrial instrumentations. Prerequisite: MAT 102, PHY 102.

**PHY-1101 Applied Science** **(3 - 2 - 4)**

An introduction to physical principles and their application in industry. Topics in this course include measurement; properties of solids, liquids, and gases; basic electrical principles. Prerequisite: MAT 1101.

**PHY-1102 Applied Science** **(3 - 2 - 4)**

The second in a series of two courses of applied physical principles. Topics introduced in this course are heat and thermometry, and principles of force, motion, work, energy, and power. Prerequisite: PHY 1101.

## ELECTRICITY

**ELC-201 Electrical Machinery** **(3 - 0 - 3)**

A course in basic understanding and application of electricity to modern industrial machinery. Included is a study of D.C. and A.C. motors, motor controls and protecting devices, transformers, and their industrial applications. Prerequisite: PHY 103.

**ELC-205 Applied Electricity** **(2 - 4 - 4)**

Electrical code, interpretation of nameplate data, motor characteristics and selection, motor controls and protection devices, single phase and three-phase current applications, wire size calculations and Y and Delta connections. Prerequisite: PHY 103.

**ELC-1117 Basic Electricity** **(3 - 0 - 3)**

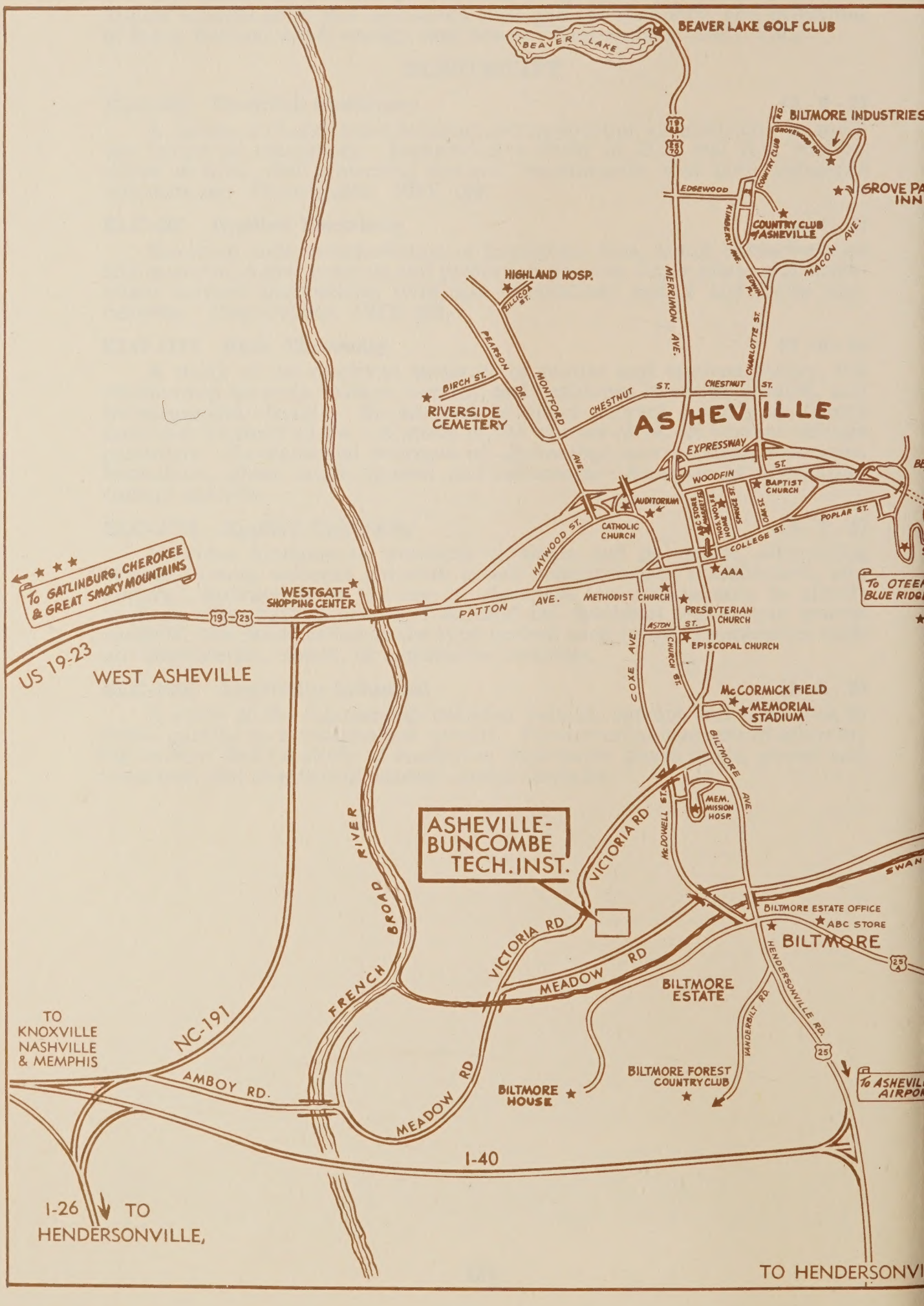
A study of the electrical structure of matter and electron theory, the relationship between voltage, current, and resistance in series, parallel, and series-parallel circuits. An analysis of direct current circuits by Ohm's Law and Kirchoff's Law. A study of the sources of direct current voltage potentials. Fundamental concepts of alternating current flow, reactance, impedance, phase angle, power, and resonance. Analysis of alternating current circuits.

**ELC-1118 Applied Electricity** **(3 - 2 - 4)**

Provides fundamental concepts in single and polyphase, alternating current circuits, voltages, currents, power measurements, transformers, and motors. Instruction in the use of electrical test instruments in circuit analysis. The basic concepts of AC and DC machines and simple system controls. An introduction to the type control used in small appliances such as: thermostats, timers, or sequencing switches.

**ELC-1201 Electricity-Industrial** **(2 - 3 - 3)**

A study of the relationship between voltage, current and resistance in series, parallel and combination circuits. Fundamental concepts of alternating current flow; a study of reactance, impedance, phase angle, power and resonance and alternating current circuit analysis.


BEAVER LAKE GOLF CLUB
BEAVER LAKE
BILTMORE INDUSTRIES
GROVE PA INN
EDGEWOOD
COUNTRY CLUB OF ASHEVILLE
KIMBERLY AVE.
MACON AVE.
HIGHLAND HOSP.
MERRIMON AVE.
CHARLOTTE ST.
BIRCH ST.
PEARSON DR.
MONTFORD AVE.
CHESTNUT ST.
RIVERSIDE CEMETERY
ASHEVILLE
EXPRESSWAY
WOODFIN ST.
BAPTIST CHURCH
AUDITORIUM
CATHOLIC CHURCH
HAYWOOD ST.
COLLEGE ST.
POPLAR ST.
AAA
To GATLINBURG, CHEROKEE & GREAT SMOKY MOUNTAINS
WESTGATE SHOPPING CENTER
PATTON AVE.
METHODIST CHURCH
PRESBYTERIAN CHURCH
ASTON ST.
EPISCOPAL CHURCH
US 19-23
WEST ASHEVILLE
COXE AVE.
CHURCH ST.
McCORMICK FIELD
MEMORIAL STADIUM
BILTMORE AVE.
MEM. MISSION HOSP.
ASHEVILLE-BUNCOMBE TECH. INST.
VICTORIA RD
BROADWAY
BILTMORE ESTATE OFFICE
ABC STORE
BILTMORE
HENDERSONVILLE RD.
FRENCH BROAD RIVER
MEADOW RD
BILTMORE ESTATE
VANDERBILT RD.
TO KNOXVILLE NASHVILLE & MEMPHIS
NC-191
AMBOY RD.
BILTMORE FOREST COUNTRY CLUB
BILTMORE HOUSE
I-40
I-26 TO HENDERSONVILLE,
TO HENDERSONVI